

STERLING'S
MARINE CATALOG
& SERVICE

STERLING-COOPER COMPANY

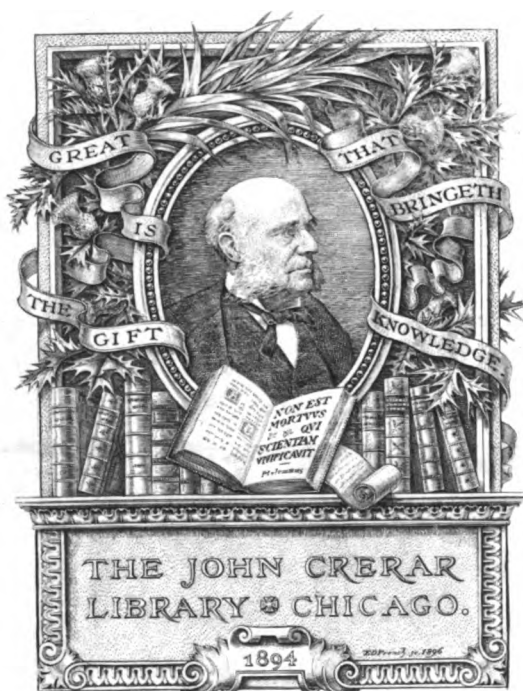
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STERLING'S MARINE CATALOG & SERVICE

Being a complete Marine Directory & Catalog
Service for Shipbuilding Plants, Ship Repair
Yards, Steamship Companies, Marine Manu-
facturers and Dealers and for Allied Industries



1920 EDITION

STERLING-COOPER COMPANY

NEW YORK

8

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NEW YORK

FOREWORD



THE vast strides in shipbuilding and marine engineering have outstripped development of co-ordination among the producers of equipment in these industries. The time has passed when the contract for one small vessel will be the cause for assembly of all the *prominent builders* at the point of *contract*. Modern facilities for disseminating commercial marine data are demanded by the developed conditions. A new service to this great market is essential.

Sterling's Marine Catalog is issued with the sole purpose of serving as a Clearing House of information concerning Manufacturers, their agents, and the principal users of their products: the Shipbuilders, Ship Owners, and Operators.

Sterling's Marine Catalog contains a technically correct classified index. Under each heading appears an alphabetical list of manufacturers of the item. Advertisers appear in bold-face type with page number of their advertisement. Sections containing data on Shipbuilding Yards, Steamship Companies, and Port Facilities of all Ocean, Gulf, and Lake Ports appear immediately after the Classified Index.

No effort or expense has been spared to make the information contained herein complete and correct. Matters not related to Marine Interests have been rigidly excluded.

The expense of this work has been borne in part by our advertisers. We therefore bespeak for them your special consideration.

Constructive criticism for the betterment of the Catalog is earnestly solicited.

IF WE HAVE SERVED YOU, PLEASE MENTION THE CATALOG.

★ L 623.8685

1

Marine Engineer's Handbook

Editorial Staff of Thirty Specialists

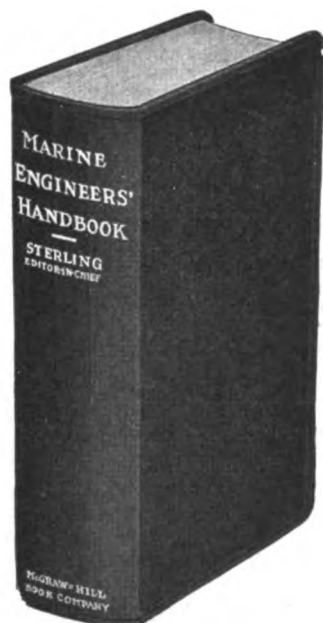
FRANK WARD STERLING

Editor-in-Chief

Lieutenant Commander, U. S. Navy

Late Sec'y-Treas., A. S. N. E.

Member Soc. Nav. Arch. & Mar. Eng., etc.



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For Engineers**

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**FIFTEEN SECTIONS. 1450 PAGES, FULLY COVERING
ALL BRANCHES OF MARINE ENGINEERING**

**Supplement the Commercial Information of Sterling's Cat-
alog with the Technical Information of Sterling's Handbook**

ORDERS PROMPTLY FILLED FROM STOCK

**STERLING-COOPER COMPANY, 141 BROADWAY
NEW YORK**

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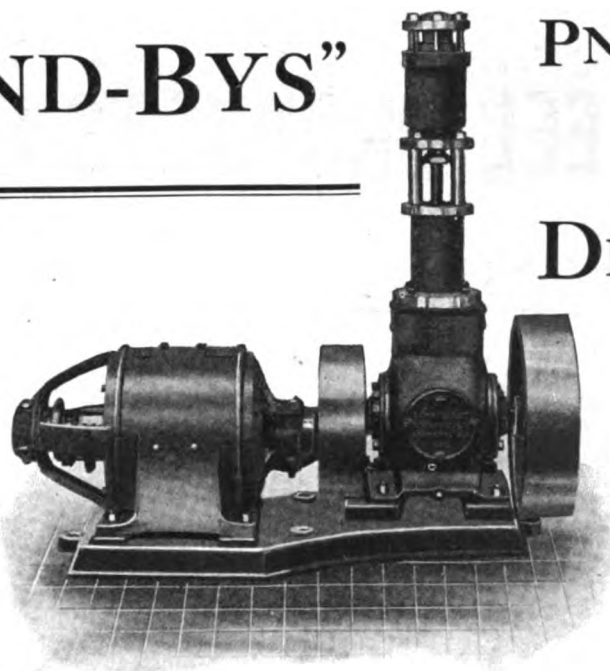
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Strength"

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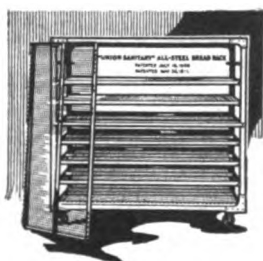
140 N. Berrien St., Albion, Mich., U. S. A.

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Manufacturers of Steel Bakery Equipment of every description; Oven, Broiler and Refrigerator Racks; Elevating Trucks; Poultry Equipment; Wire Cloth; Steel Stairways and Fire Escapes; Wire and Iron Work; Window Guards, etc.; Sand, Gravel and Coal Screens; Plumbers' Pipe Hangers; Grey Iron Castings; Casters; Steel Specialties; Wire Goods; etc.

Regular Commercial lines of Bakery and other equipment carried in stock at the factory. Automatic equipment makes possible a large scale production to your special specifications. We will submit price on receipt of inquiry.

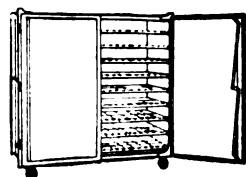


"UNION Sanitary" All-Steel Bread Rack No. 24

Frame of heavy steel with one-piece patented malleable corners, insuring a perfectly rigid rack. Hot galvanized after making. Easily cleanable with steam or hot water. Rust-proof and durable. Shipped knock-down or set up. Domestic shipping weight about 380 lbs.

No. 400 Series All-Steel Seamless Dough Troughs

Made without a rivet—the latest welding equipment permits us to build a one-piece trough of extra strength, absolutely tight. No wood or sharp corners to accumulate dirt. Constructed of the very best heavy steel boiler plate. Average domestic shipping weight 500 lbs.

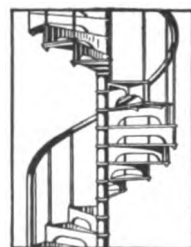
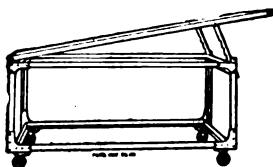


No. 41 "UNION Sanitary" Portable Proof Box

All metal; frame being rigidly and durability constructed of heavy galvanized steel with extra heavy galvanized sheet iron covering. Removable shelves, hinged doors. Special quick locking device. Domestic shipping weight 600 lbs.

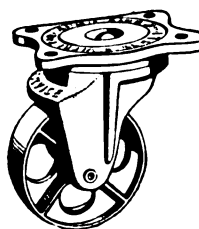
No. 135 Combination Oven Chute and Work Table

Quickly adjusted to height of oven door. Durably made of galvanized steel. Easily handled, easily cleaned. Patented 1-piece malleable corners insure extreme rigidity. Top is 32x84 inches. Saves the floor space an extra table would require.



Steel Stairways

We are prepared to give estimates of stairs, balconies, fire escapes, guards, railings, grills, elevator enclosures and all other wire and iron work, upon receipt of blue prints.

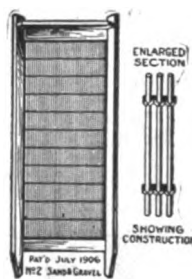
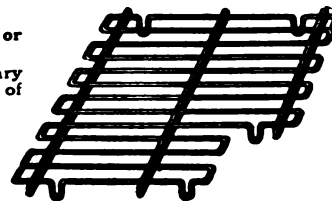


"Service" Ball-Bearing Swivel Caster

Lasts six times as long. Wheel yoke "floats" between two circles of hardened steel balls, making it impossible for the caster to bind or slide. Wheels are bored and reamed, and the rim afterward turned true with center bore. Cold rolled steel axles are end-swelled and cannot turn. Easily oiled. Bored to interchange with old style casters.

"UNION Sanitary" Broiler or Pan Rack

Strongest and most sanitary rack made. Constructed of continuous wire, swedged into re-enforcing bars which hold broiler in shape and level. We furnish with or without legs in any mesh and any gauge of wire.

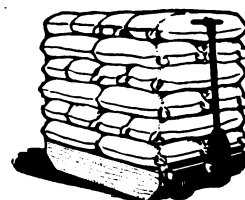


"UNION" Sand and Gravel Screens

Guaranteed to handle 50 per cent. more material than any other screen. No. 1 size, 23x72; No. 2 size, 29x72; No. 3 size, 29x72. Special screens for all purposes made to order.

The "Elevayor" Truck

One man will easily handle loads on skids up to two tons, by means of this truck. Raises its burden 3 inches from floor and deposits it without a jar. Eight distinctive features. Write for our illustrated catalogue.



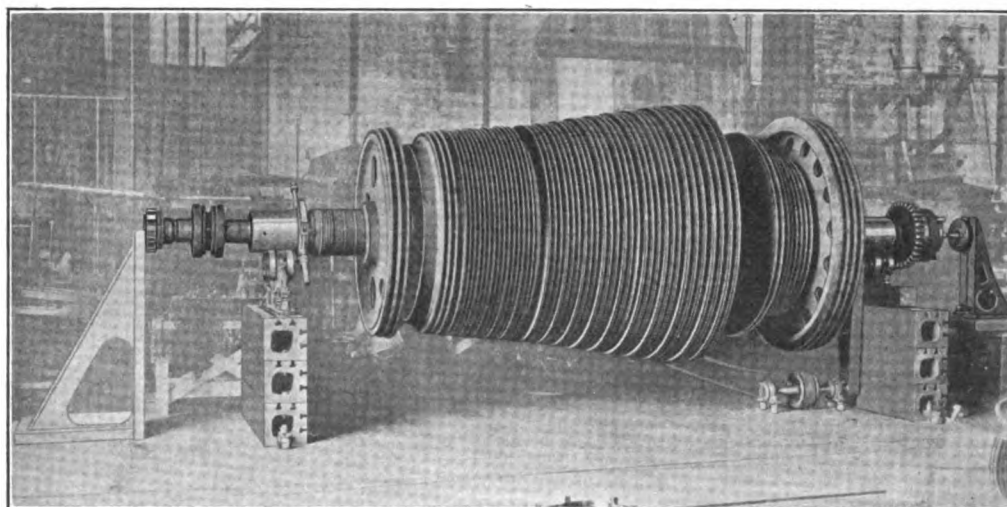
"Tri-Wheel" Truck

Possesses all the advantages of a two-wheel truck with those of a platform truck. Heavy cases quickly loaded and unloaded. Carries all the load. Easily moved from place to place. Adjusts to three different positions. Write for special literature.



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Our Specialty!



The Weight of Steam Turbine Rotor is 35,000 Pounds. Overall Length, 22 Feet, Diameter 7 Feet. It Was Put in Perfect Running Balance on Our Portable Equipment.

The Four-Fold Activities of Our Company

1—The manufacture of balancing apparatus (latest Akimoff designs) and all kinds of special machinery for the study and elimination of vibrations in buildings, machinery, ships and structures of all kinds.

2—Practical balancing, both in our laboratory and in the field; all weights and sizes.

3—The designing of high-speed parts, such as crankshafts of gas engines; special rotors of all kinds.

4—Research work along all lines of mechanical engineering, with facilities for working out difficult problems of engineering practice.

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Engineer and Manager

(Positively not connected
with any other concern
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Machinery).

Our Machines
Don't
Come Back

MR. AKIMOFF'S initials

MA

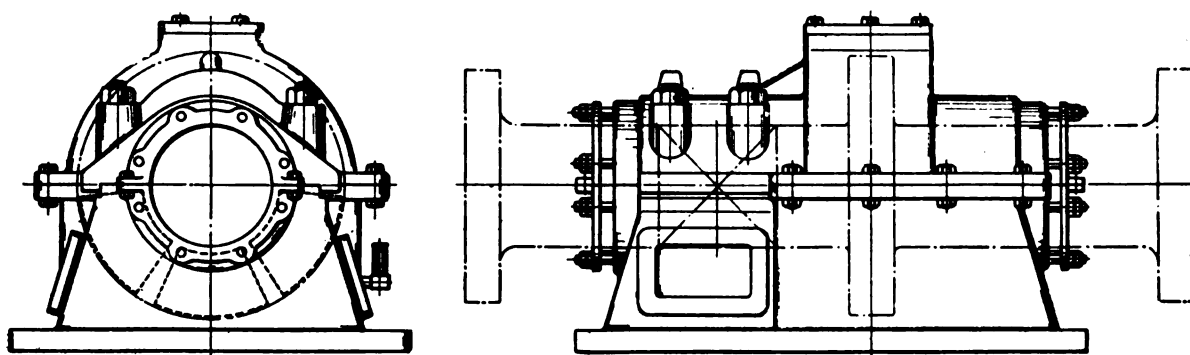
are our Trade Mark

VIBRATION SPECIALTY COMPANY

HARRISON BUILDING
PHILADELPHIA, PA.

KINGSBURY THRUST BEARINGS

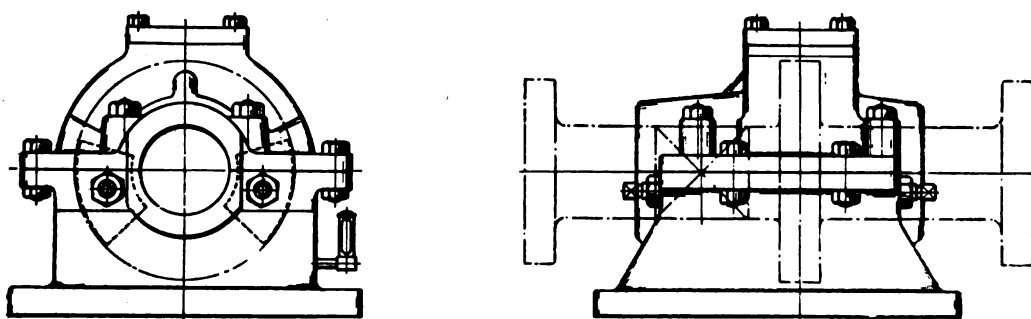
—make the oil carry the load and eliminate wear



ABOVE figure illustrates a type of thrust and guide bearing combined that is regularly furnished for shaft 9 inches diameter and larger. Both thrust and guide bearings are lubricated by the rotation of the collar, the oil level being carried just below the shaft. Three shoes are provided as illustrated, bearing against each face of the collar. They are mounted on equalizers for insuring equal distribution of the thrust pressure.

This bearing is suitable for cargo vessels, whether propelled by reciprocating engines or otherwise. It will operate air-cooled in ordinary service and can be water-cooled when required. Or it can be cooled by means of connection with central oil circulating system.

The lower guide bearing shell is removable, and the housing can be provided with pads for direct bolting to the aft end of the enginebed plate. Write for dimensions and quotations.



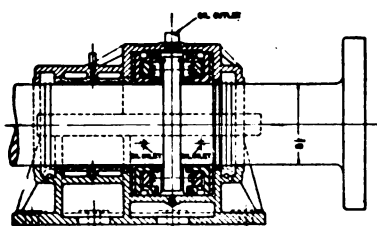
ABOVE figure illustrates a type of combined thrust and guide bearing regularly built for shafts less than 9 inches diameter. Automatically lubricated throughout by rotation of the collar that dips into the oil carried in the housing base. Two shoes take the thrust in each direction. This bearing, although designed for general marine service, is especially suitable for mounting directly abaft an internal combustion engine. It will operate air-cooled in ordinary service, and can be water-cooled when required, or air-cooled by means of connection to oil circulating system. Write for dimensions and quotations.

—for marine service

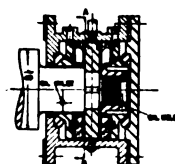
KINGSBURY THRUST BEARINGS have a practically unlimited range of application, as evidenced by the many successful installations on cargo and passenger vessels, as well as in the United States Navy, where they are standard equipment. They operate with equal success, whether the vessels are propelled by reciprocating steam engines, internal combustion engines, Turbo-electric or geared drives.



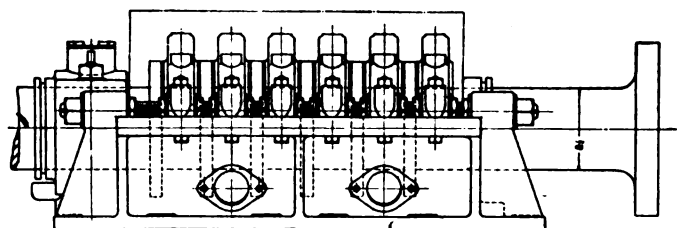
COMPARISON BETWEEN KINGSBURY AND OLD-STYLE HORSE-SHOE THRUST BEARINGS



Kingsbury Thrust Bearing, Split Type, with One Guide Bearing.
Weight 1,230 lbs. Friction Loss
 $1\frac{1}{2}$ H. P., Space Occupied
 $5\frac{1}{2}$ Cubic Feet



Kingsbury Thrust Bearing. Suitable for End of Shaft. Weight 360 lbs.
Friction Loss 1 H. P. Space
Occupied $1\frac{1}{2}$ Cubic Feet



Horseshoe Thrust Bearing (Marine Type) with One Guide Bearing. Weight 3,120 lbs. Friction Loss 15 H. P.
Space Occupied 19 Cubic Feet

ALBERT KINGSBURY, ENGINEER
Sole Manufacturer and Licensor, Oliver Building, Pittsburgh

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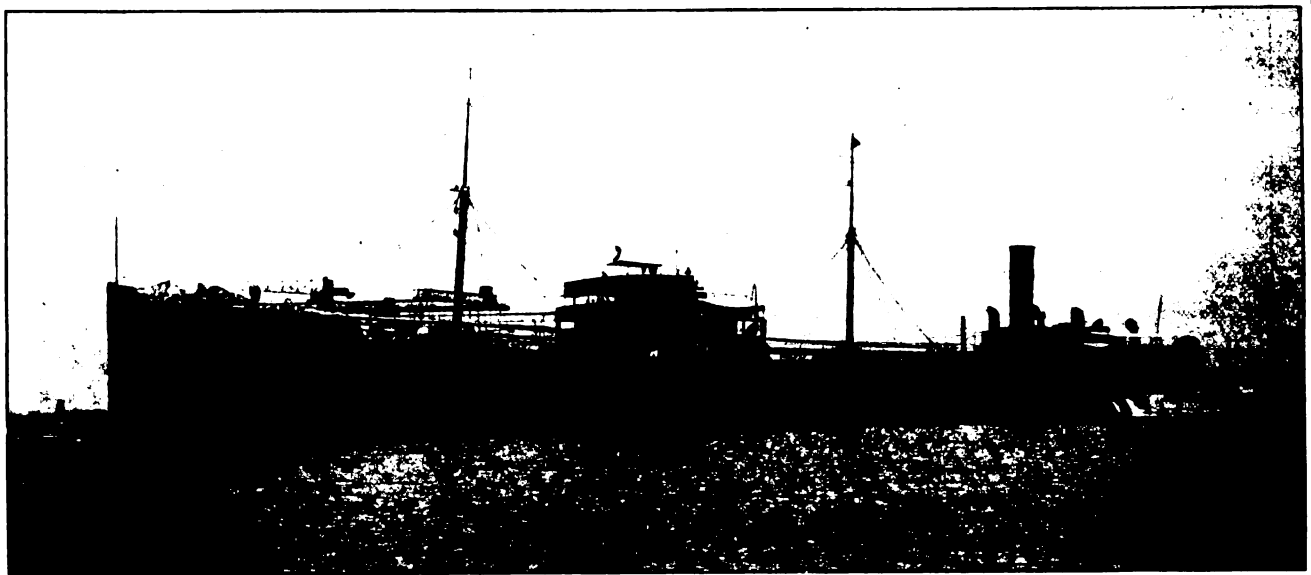
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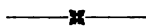
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Manufacturers of Marine Water Tube Boilers Since 1895



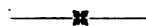
BABCOCK & WILCOX FORGED-STEEL MARINE WATER TUBE BOILERS and SUPERHEATERS

FOR VESSELS OF ALL CLASSES

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1350 Boilers for Vessels of Emergency Fleet Corporation

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STRAIGHT TUBES EXPANDED JOINTS

Individual Boilers from 1500 to 6000 Square Feet H. S.



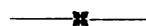
White-Forster Express Type Boilers

3¼ Million Horse-Power for U. S. Navy
Minimum Weight, Highest Capacity and Efficiency



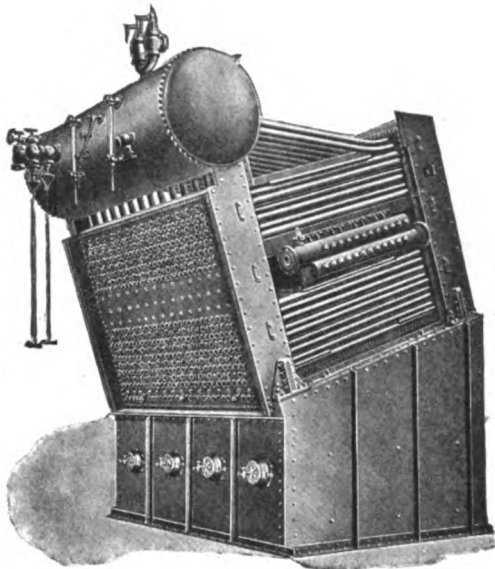
Mechanical Atomizing Oil-Burners

1½ Million Horse-Power; 850 Boilers; 5,000 Burners
Capacity per Burner as high as 1,500 Lbs. per hr.



LITERATURE AND INFORMATION SUPPLIED ON APPLICATION

FOSTER MARINE SUPERHEATERS



Typical Foster Superheater in Foster Marine Water-tube Boiler

Foster Superheaters on marine boilers effect a fuel saving of from 6 to 40 per cent., eliminate condensation losses in pipe lines and engine cylinders, increase efficiency of turbines at least 10 per cent., due to absence of water, and protect turbine blades from erosion. Superheating 100° F. effects about the following savings in steam used: turbines, 10 per cent., triple expansion engines, 12 per cent., compound engines, 14 per cent.

Foster Marine Superheaters are built in the "attached type" for attachment within the setting of water-tube boilers and "waste heat type" for Scotch marine boilers for location in the path of the furnace gases after they have left the boiler heating surface.

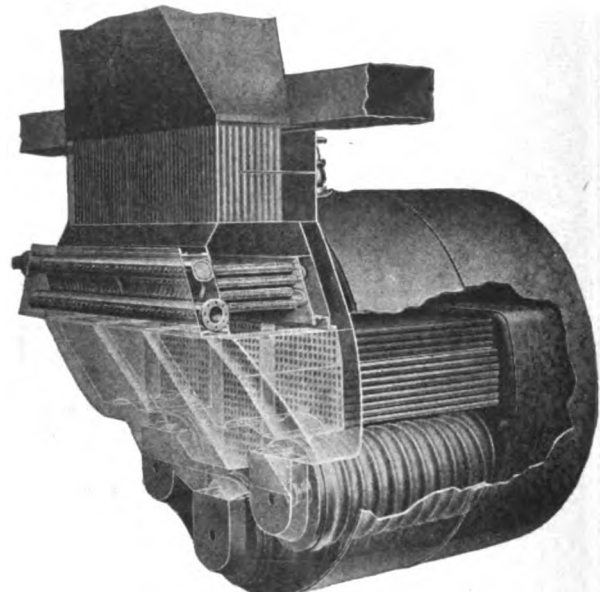
The superheater consists of a series of U-bend tubes or sections set parallel to each other, expanded into steel manifolds, the saturated steam being led through these tubes to the outlet piping to the steam main.

The heating elements of the Foster Superheater are U-shaped steel tubes covered with cast iron rings and split cast iron sleeves over the U-bends. The ends are expanded into inlet and outlet manifolds having reamed holes.

All parts exposed to steam pressure are of steel, thus giving maximum strength. All parts exposed to gases of combustion are of cast iron, thus insuring long life.

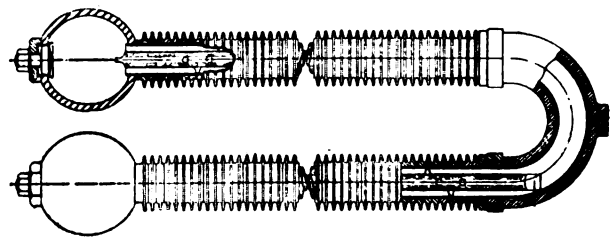
Opposite the end of each element a handhole is fitted with a steel plug and metallic gasket, in order to give free access to every part of the interior for inspection and cleaning.

The extended surface formed by the cast iron annular rings or gills on the outside of the steel tubes greatly



Typical Foster Waste Heat Type Superheater in a Scotch Marine Boiler

increases the absorption of heat from the hot gases, thus making the heat transfer to the steam flowing through the tubes much more effective than that of a bare tube construction. The cast iron outer surface also



Typical Foster Superheater Element

protects the steel tubes from the erosive and corrosive action of the furnace gases.

This construction provides a section of great ultimate strength with absolute freedom from internal strains and forms a large reservoir for the storage of heat which is given up to the steam as required by the variations in gas temperature. This keeps the temperature of the steam constant.

Central inner cores provide annular spaces through which all steam must pass close to the heating surface. Figure 3 shows the construction including headers and handhole plugs.

Catalogs containing detailed explanation of theory of superheating, construction of apparatus, illustrations, data on savings, etc., will be sent on request.

POWER SPECIALTY COMPANY

Foster Superheaters for Marine and Stationary Boilers and Locomotives

General Offices: 111 BROADWAY, NEW YORK

BOSTON

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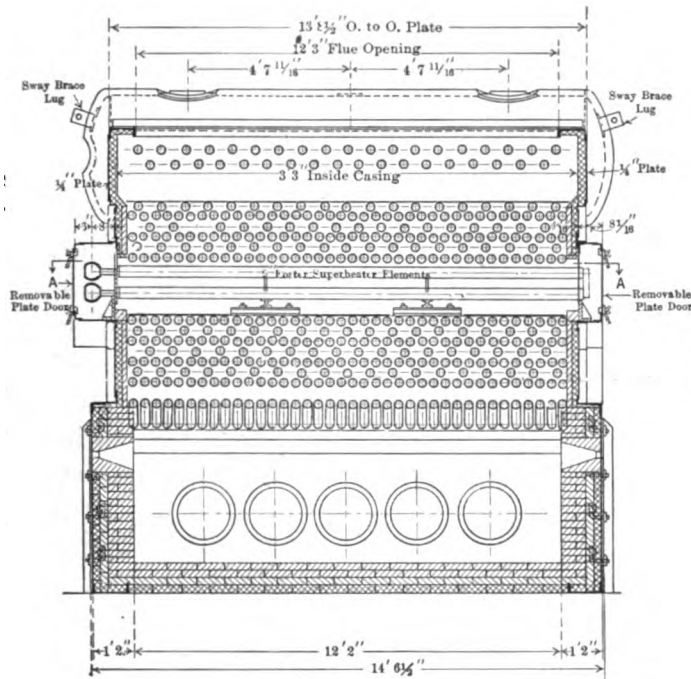
PITTSBURGH

CHICAGO

SAN FRANCISCO

LONDON, ENGLAND

FOSTER WATER-TUBE BOILERS



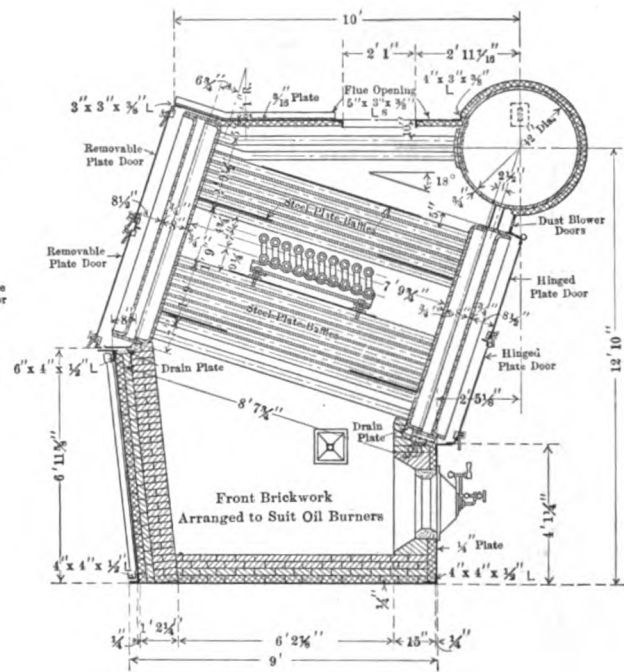
The Foster Marine Boiler is the latest development of the cross-drum straight-tube type which has been used so successfully for many years, both in naval and merchant marine service.

The characteristic features which distinguish the Foster Boiler from similar marine water-tube boilers are close tube spacing, steel baffles, superheating chamber in the center of the tube nest, method of support for necessary expansion, increased furnace insulation, improved handhole caps with metal-to-metal joint, large furnace volume and the airtight steel casing. These features improve fuel economy, lower the draft loss, give less radiation and make this boiler simpler to operate and easier to clean and repair than the ordinary cross-drum straight-tube boiler. When operated at its designed capacity of approximately 5 pounds of evaporation per square foot of heating surface per hour, from and at 212° F., the stack temperatures of the Foster Boiler will not exceed 450 to 500° F.

The tubes are usually 3-inch, arranged vertically and horizontally on about 4-inch centers, giving a minimum height and width for the tube nest, with corresponding reduction in over-all dimensions.

The baffles are of steel plate and fit horizontally between the tubes in a way to be gas tight and cooled top and bottom by contact with the tubes. The gases are compelled to take a sinuous path without right angle turns and sweep over the entire heating surface with minimum draft loss.

The furnace insulation consists of one 2½-inch layer of insulating brick and another 2½-inch layer of cal-



cined insulating brick, inside of which is a full 9-inch layer of high grade fire brick. In most ships equipped with Foster Boilers the hand can be held against the hottest part of the casings.

The headers are 8 inches deep to assure ample water for circulation and heat storage.

The circulation is rapid, well defined and follows the U-tube principle.

The steam space and disengaging surface are ample to give dry steam when operating with fresh water.

The patented method of support not only holds the boiler rigidly in proper position, but allows for expansion of the tubes and headers.

The use of soft gaskets, except for a few master hand-hole plates at the bottom of each header, is eliminated by metal-to-metal handhole plates. The handhole plate openings are reamed to a three-degree taper and the openings closed with a circular cap. These caps can be removed and replaced through the master hand-holes.

The solid well-designed steel casing has a removable upper panel, is solid-riveted in the lower half and completely eliminates air infiltration.

A simple efficient type of soot blower makes thorough soot removal easy and practical as often as desired. No hand blowing is required.

The furnace brick work is of standard 9-inch fire brick properly held to the casing with hook bolts.

When superheat is to be employed, the well known and highly efficient Foster Superheater is furnished. Ask for Catalogue No. 51.

FOSTER MARINE BOILER CORPORATION

111 BROADWAY, NEW YORK

BOSTON

PHILADELPHIA

CHICAGO

SAN FRANCISCO

PITTSBURGH

Plants at Edgemoor, Del.

Oil City, Pa.

Springfield, Ill.

Portland, Oregon

HEINE

SINCE 1882 the Heine Safety Boiler Company has been building water tube boilers. At present two modern factories, at St. Louis, Mo., and at Phoenixville, Pa., are supplying the demand for high grade steam boilers. During the

They may be subjected to great stress without danger of rupture or failure, thus permitting the boiler to be retubed without injury to the waterlegs. The boiler proper is supported by a strong steel structure, resting upon and secured to proper foundations in the vessel.

The Heine Boiler can be arranged to suit almost any space conditions, both as regards floor area and height, due to the simplicity of the design. It may be arranged for either coal or oil burning.

Advantages of Horizontal Baffling

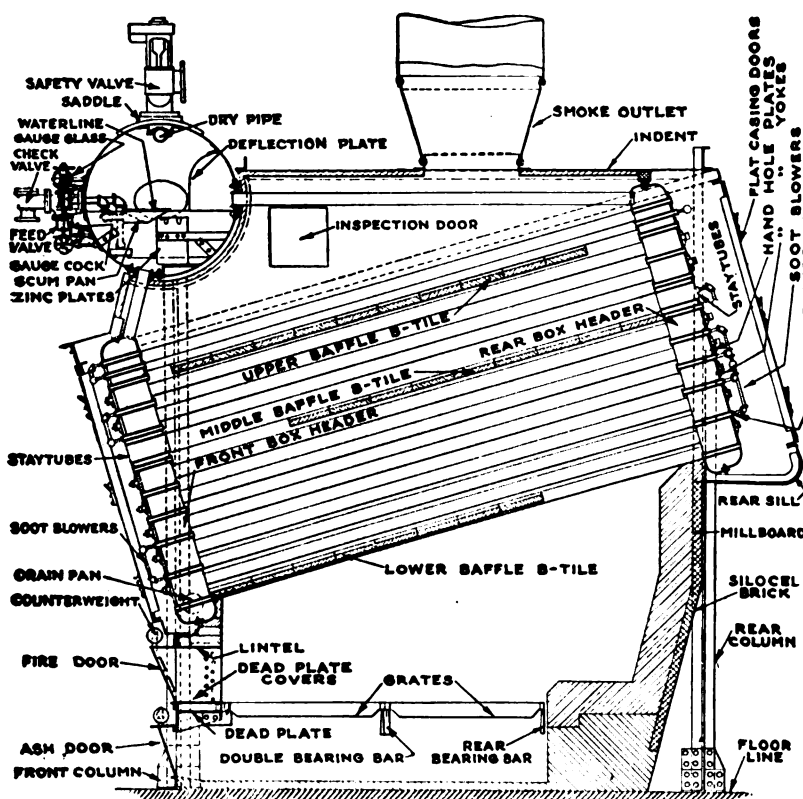
The Heine Water Tube Marine Boiler is provided for horizontal baffling. This method of baffling reduces the size of the dead corners so that a larger percentage of the total boiler surface is active. Horizontal baffling has been applied to boilers originally designed with vertical baffling, with a result that comparative

tests have shown a marked increase in efficiency to be due to the horizontal baffling.

Soot Cleaning

The design of the boiler and the horizontal baffle lend themselves readily to the application and use of the simplest soot cleaning system. The hollow stay-bolts in the waterlegs are arranged to accommodate the nozzles of the soot cleaner.

The Heine Safety Boiler Com-



war the Heine Company supplied marine boilers for more than one hundred ships. The first marine boilers were of the "longitudinal drum" type, but the later ones were of the "cross drum" type. These cross drum boilers have shown themselves vastly superior for marine service.

Simplicity of Design

The Heine Water Tube Marine Boiler consists of two box headers, straight tubes, and a drum. The headers or water legs are the strongest part of the Heine Boiler.



BOILERS

pany was the first to recognize the importance of complete mechanical equipment for keeping boiler surface clean. Soot cleaners have been furnished as a permanent part of the Heine Boiler for six years.

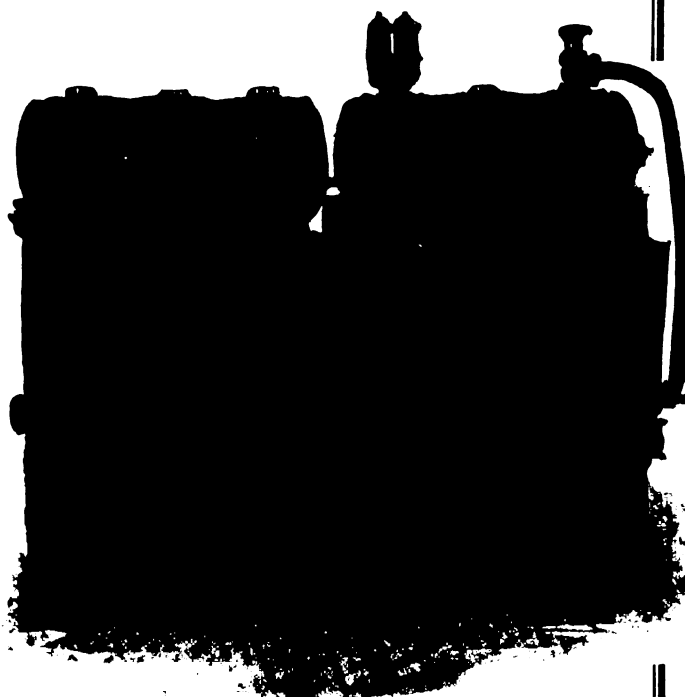
Heine Marine Boilers can be equipped with superheaters for any degree of superheat. For high superheats, the boilers are fitted with superheaters below the middle baffle. For medium or low superheats, the elements are of the "waste heat" type, placed in the base of the uptake. Closing the superheater damper isolates the tubes from hot gases when raising steam or when the load goes off suddenly. Under these conditions the superheater becomes so much additional steam storage space.

Typical Specifications

The Heine Marine Boiler can be designed for any heating surface required, and the length of boiler, floor space and height can be varied within wide limits to meet any specific condition. A number of marine boilers have been built to the following specifications:

Boiler heating surface...	3,014 sq. ft.
Superheating surface...	400 sq. ft.
Width overall at base...	11 ft.
Height overall.....	15 ft.
Length overall, front to rear, about.....	12 ft.

Diameter of drum.....	3 ft. 6 in.
Length of drum, about...	9 ft. 8 in.
Length of tubes, between headers	10 ft.



HEINE MARINE BOILER AND MARINE SUPERHEATER
The seven groups of superheater tubes are shown connected to a collector, which in turn is connected by piping to the boiler shell.

Technical Data

The general design of marine power plants is taken up in a treatise, *Marine Boiler Logic*, which is published by the Heine Company for the benefit of all interested in marine engineering. A copy will be sent upon request.

HEINE SAFETY BOILER CO.

5335 MARCUS AVE. ST. LOUIS, MO.

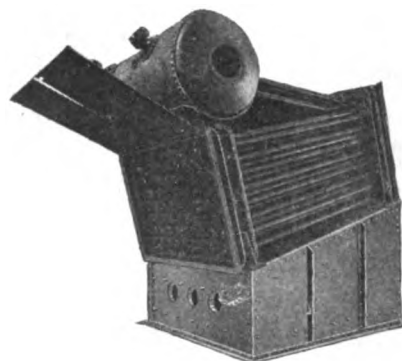
All Heine marine boilers conform to the regulations of the United States Board of Supervising Inspectors, and are approved by the recognized marine rating associations.

NEW YORK ENGINEERING CO.

WATER TUBE

MARINE BOILERS

The Empire Water Tube Marine Boiler, illustrated at the right, meets the requirements of those preferring a boiler with the usual straight tubes, water leg headers, and a multitude of hand holes.

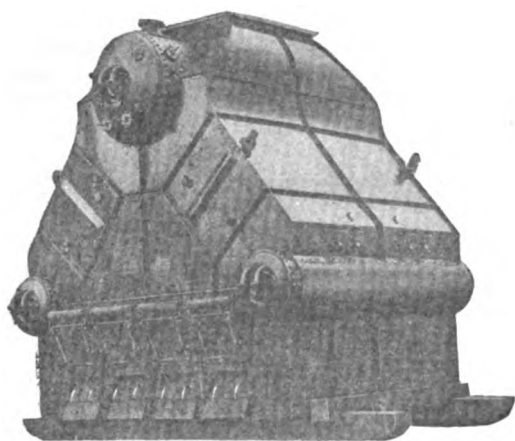


"Empire" Marine Boiler

But where the preference is for a boiler without any hand holes or stay bolts—a boiler wherein every pressure part is a true circle—a boiler of great durability and efficiency—a boiler of most modern type—the Ludlum Water Tube Marine Boiler is recommended.

The "Imperator" and the "Vaterland" (now the "Leviathan") carry boilers of this type; and most of the newer vessels of the U. S. Navy are being equipped with boilers of this type, because—

It is the most economical, and the most simple.



"Ludlum" Marine Boiler

The circulation is free—no restricted passages.

A large reserve water capacity is provided. Perfect freedom for expansion and contraction.

All pressure parts accessible through three manholes.

It is a self-contained unit.

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WORKS AT YONKERS, N. Y.

The Tracy Steam Purifier

will raise your superheat

50 degrees

Perhaps half the cost of generating power is for fuel to produce steam, therefore if steam is the all important product as the first step in the production of power, is it not proper that some concern should be shown for the kind of steam produced?

Impure feed waters are the prime causes of wet and dirty steam, yet such waters are the only kinds available to most boilers and their use is required. Chemical treatment merely lessens scale deposition and generally increases the moisture and dirt contents in the steam.

No type of boiler can always turn out dry steam or clean steam, and the so-called "dry pipes" can help but little toward that end.

Tracy Steam Purifiers in place of "dry pipes" prevent the passage of water or dirt through them; therefore the steam will be absolutely clean and 100% dry, by calorimeter test.

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The Tracy Engineering Company

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ERFMANN BOILER WATER CONTROLLER
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A simple apparatus for quickly determining the correct amount of Soda Ash to keep the boilers free from grease, deposit, incrustation and corrosion

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Economical

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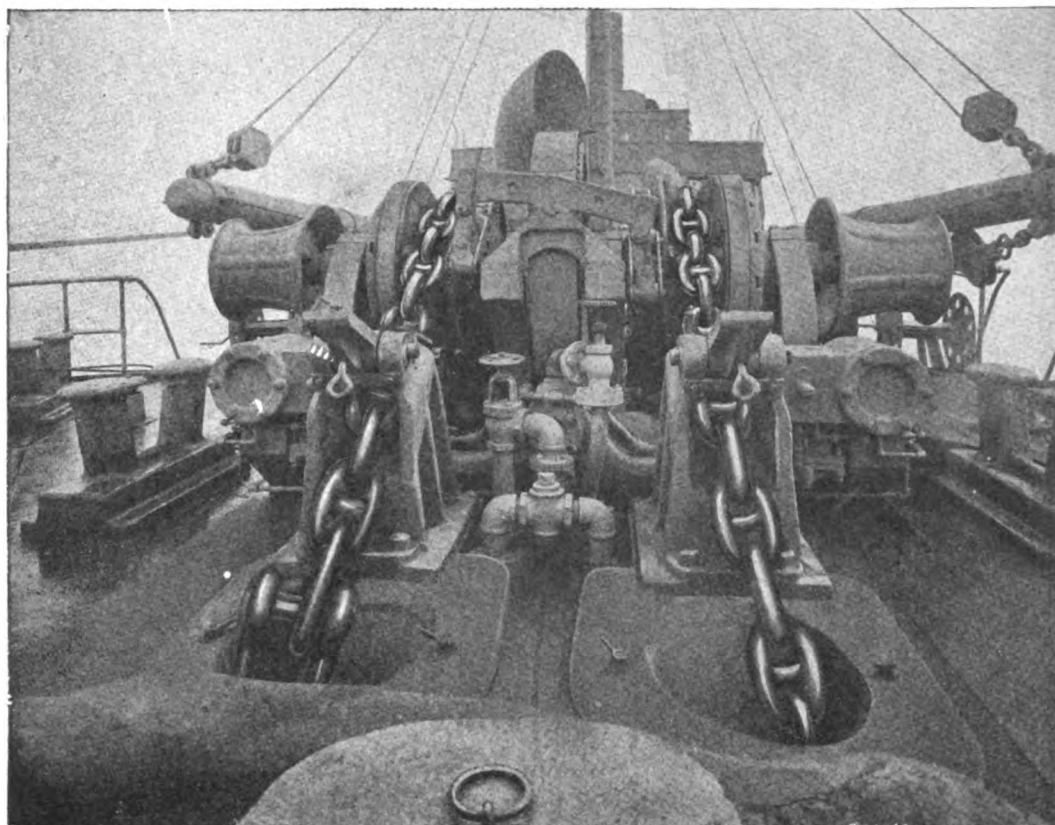
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ANCHOR CHAINS—The Stud Link Ship's Cable Chain, manufactured by the United States Chain & Forging Company, is made in all sizes to fit standard wildcats as adopted by the United States Shipping Board and manufactured by all standard windlass manufacturers. Details of dimensions and weights will be furnished on request.

SPECIFICATIONS—United States Ship's Cable Chain is made to meet in all respects the specifications of the American Bureau of Shipping, Lloyd's Register, Bureau of Veritas, or to Navy Specifications. Each link is proof tested in the company's factories on approved testing machines to strains required by these testing societies, and a certificate is furnished the purchaser.

CONSTRUCTION—United States Ship's Cable Chain is made from the best grade of iron obtainable, and is rolled, shaped, welded and proved in the company's mills. The utmost care is observed in every step of its manufacture to obtain links of absolute regularity and uniformity. Improved methods and careful workmanship throughout the process of construction result in a cable which exceeds all requirements of strength and which works perfectly over standard wildcats.

REPAIR CHAINS—The ample manufacturing facilities and large amount of chain of all sizes continually being made up by the United States Chain & Forging Company enables them to supply repair chains, in case of loss of part of the cable, at short notice, and for quick delivery. In ordering chain for this purpose, in case the wildcat is not of the present standard, it will be necessary to specify inside width and length of link in order to assure exact duplication.

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At such nerve racking times you can't blame people for asking—will the captain fail us? Will the anchor chains hold?

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Ocean travel demands SAFETY.

Before a seaman can secure a pilot's license he must pass the examiner's test. Before an ACCO CHAIN can get a "commission" it must prove its STRENGTH—every link must test up to its rated capacity to make SAFETY ABSOLUTE.

ACCO CHAINS are tested with the largest and most modern type of chain tester in the world.

You can stake your last dollar that every link in each chain we make will HOLD for the purpose intended. And we make chains for every known requirement from Plumbers' Safety Chain to Ships' Anchor Chain—all Sizes, styles and finishes.

Ralph B. Cone. H.A.

COMPANY, Incorporated CONNECTICUT

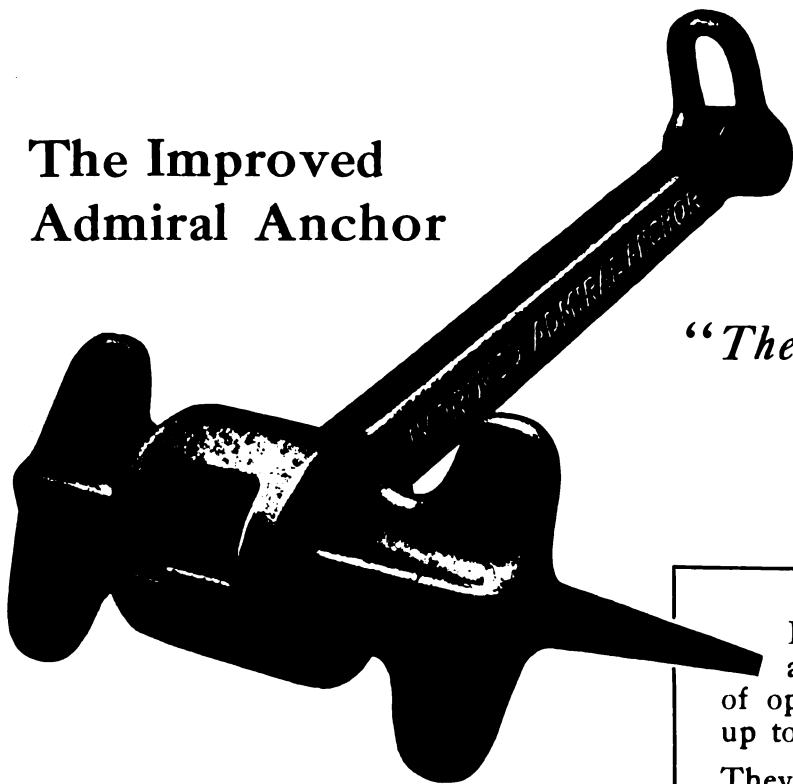
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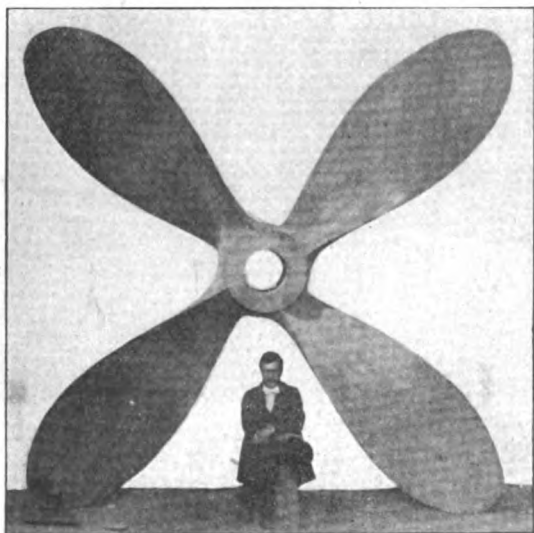
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Penn Seaboard specializes in heavy castings for marine purposes.



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They have only six parts.

They take hold simultaneously with both flukes.

They will not roll.

They will not break mud in entering it, as the flukes are parallel to the shank and make a straight pull.

They house close to the ship's side.

Every part is more than twice as strong as the cable for any given size.

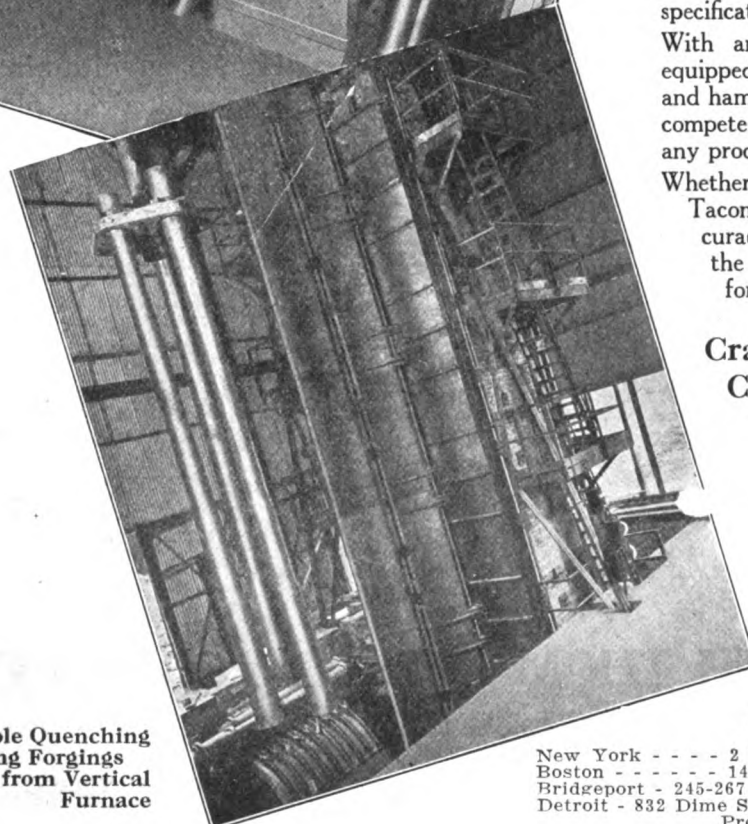
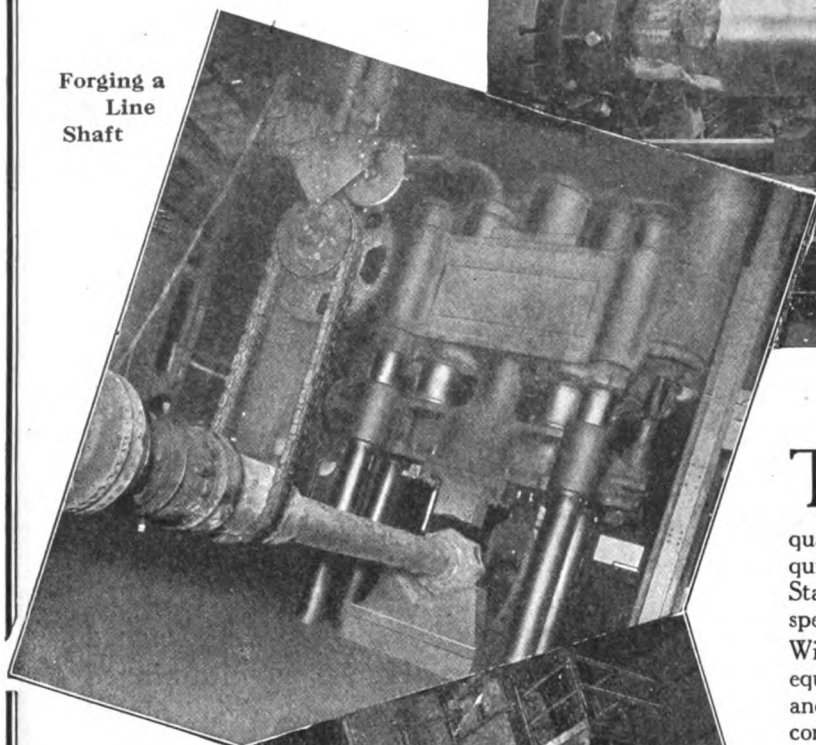
They never require repairing.

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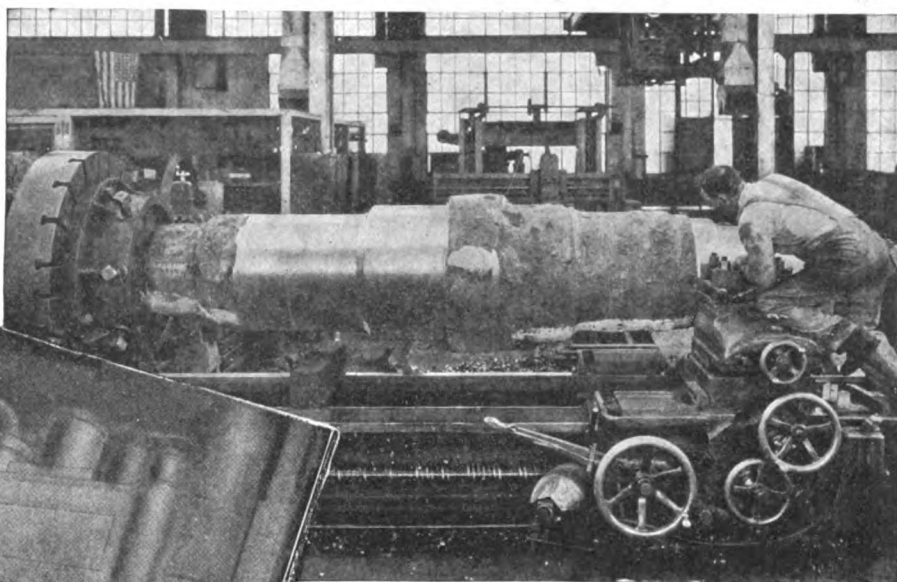
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Crank Pins—Line Shafts
Tail Shafts—Thrust Shafts
Connecting Rods**

*meeting the rigid specifications of the U. S.
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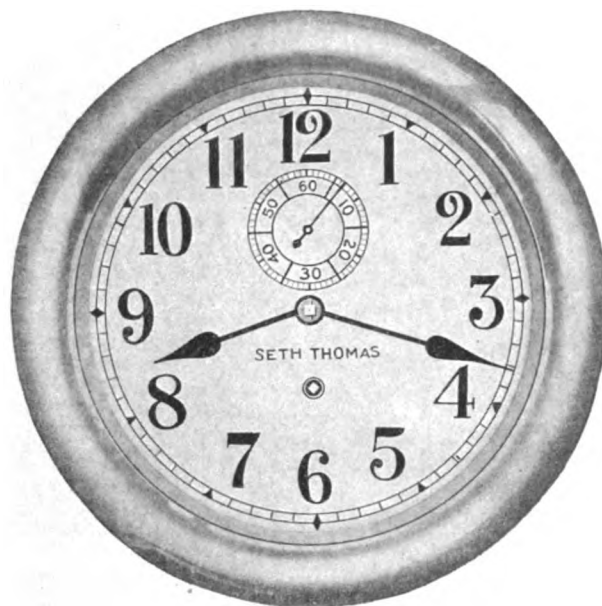
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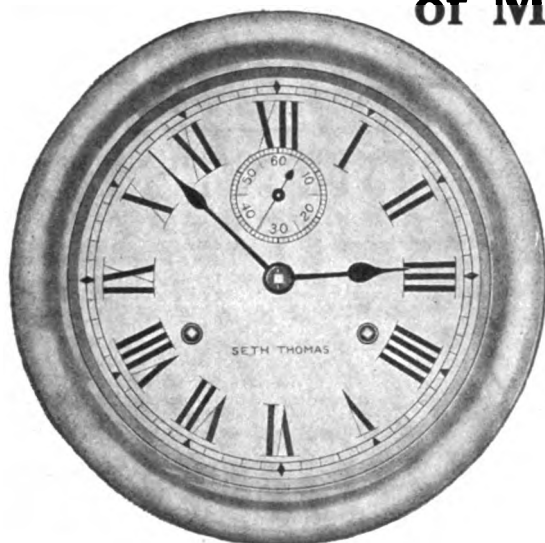
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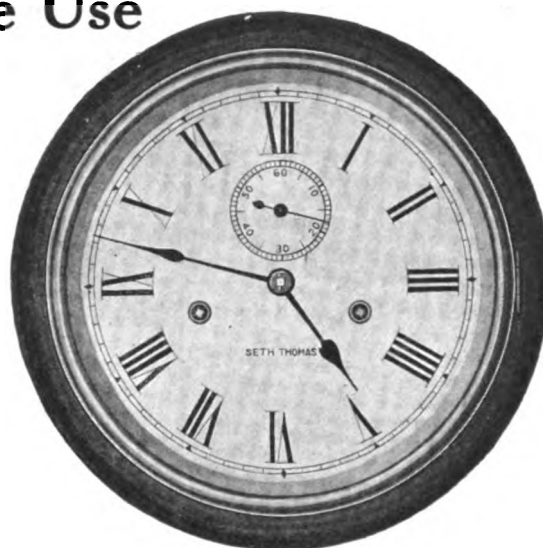
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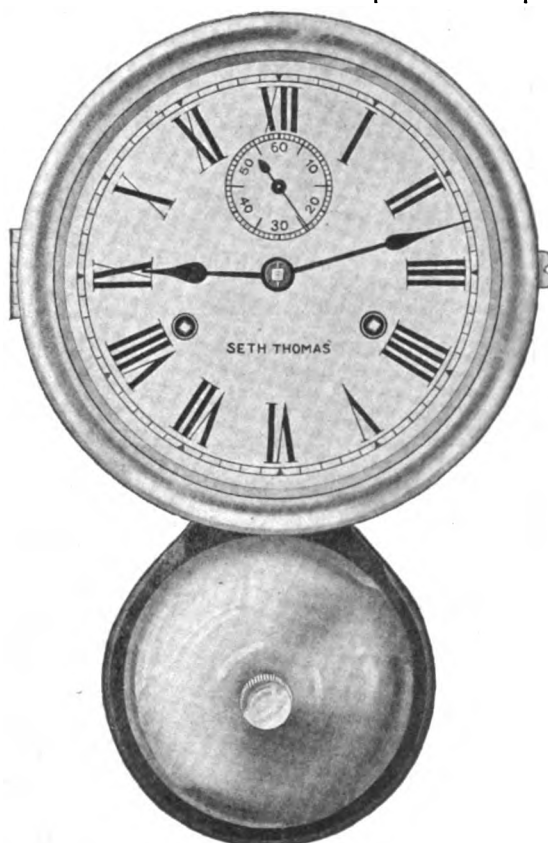
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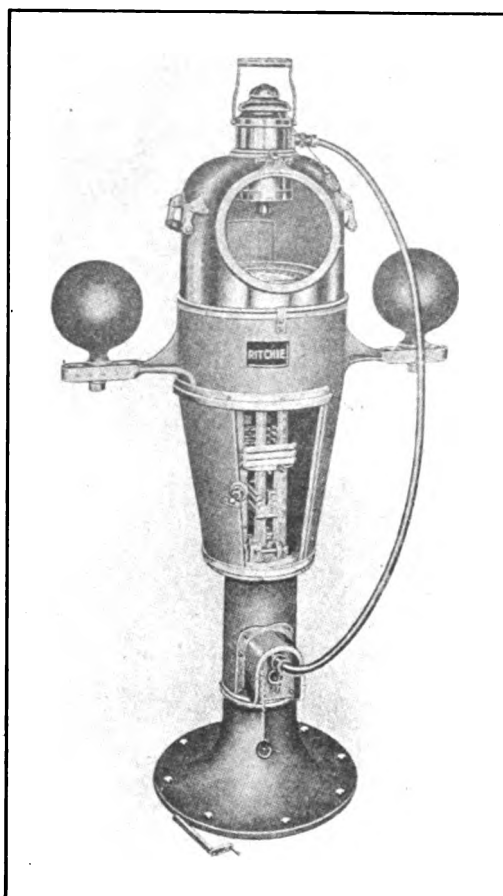
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PRODUCTS:

Complete Condensing and Evaporating Equipment for marine service—Lillie Vapor-Reversing Evaporators; High Vacuum Condensers, including (Patented) Auxiliary Tube Plate Type; Wheeler-Edwards Air Pumps; Steam Jet Air Pumps; Centrifugal Pumps; Marine Circulating Pumps; Feed Water Heaters; Reheaters; Seamless Drawn Tubes and Pipes for marine service—copper, Muntz metal, Admiralty, or special alloy.

Lillie evaporators are furnished exclusively by the Wheeler Condenser and Engineering Co., under agreement with the Sugar Apparatus Mfg. Co., S. Morris Lillie, Pres., owners of the Lillie Evaporator patents.

LILLIE EVAPORATORS:

Lillie Evaporators are built in single and multiple effects for producing a continuous supply of very pure distilled water for boiler feeding, drinking, culinary and other purposes. The high economy of the Lillie effect suits it for operation on low pressure exhaust steam as a heating agent. As many as eight effects have been used on sea water, brining high, free of incrustations, and maintaining economy and capacity.

OPERATION:

Evaporation of sea water is from rapidly moving thin films caused by mechanical showering of the sea water over the evaporating tubes. Circulation is independent of the temperature, i.e., uniform under every condition. There is no depth of solution through which vapors must force their escape. The entire heating surface of a Lillie tube operates effectively. Hence the high efficiency.

INCRUSTATIONS:

Although sea water has been found exceedingly difficult to distill, owing to incrustations, experience demonstrates that a Lillie multiple effect evaporator, due to its peculiar modes of operation, maintains its capacity for long continuous runs without cleaning. This is possible through a simple patented arrangement, by which reversal of the direction of both vapors and solution through the effects as a series is made simultaneously and almost automatically.

One notable instance of this is a remarkable performance of a Lillie eight effect sold to the War Department for distilling sea water at Fort Drum, Manila Bay. This evaporator was subjected to an acceptance test on sea water of a continuous 30-day, 720-hour, run without cleaning. At the end of the test this evaporator was running above rating at about the same degree that it ran above at the beginning of the test, and the tubes were free from incrustations.

In describing the performance of a Lillie quadruple effect on the U. S. S. Dixie, a paper in the Journal

of the American Society of Naval Engineers, February, 1913, says:

"It is found that after long periods of use the capacity is but little reduced when distilling sea water" and "the capacity is only slightly reduced after long usage without cleaning."

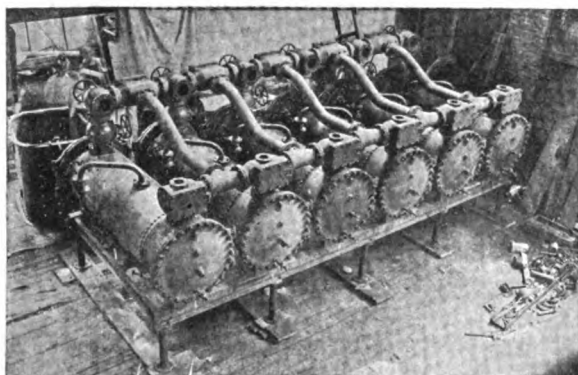
PURITY OF PRODUCT:

The distilled water produced from sea water by the Lillie is of exceptionally low chlorine content. During the acceptance test of a Lillie quadruple effect on the U. S. S. Dixie, the distilled water averaged less than 0.5 grains of chlorine to the gallon. The salinity of the brine throughout these tests was 5/32 (8/32 being saturated brine). During these tests the evaporator operated on low pressure exhaust steam of 5 lbs. and under, and produced 3 lbs. of water per pound of steam. Later, while the ship was at anchor for two days, a total of 48,250 gallons of water was distilled which averaged 0.21 grains of chlorine to the gallon. Recent testimony received verbally (March, 1919, nearly 7 years after the acceptance test) from the Chief Engineer of the U. S. S. Dixie was positively to the effect that this evaporator performs practically as described in the test, as regards incrustation, salinity of the brine (5 to 6/32) and quality and quantity of the distilled water.

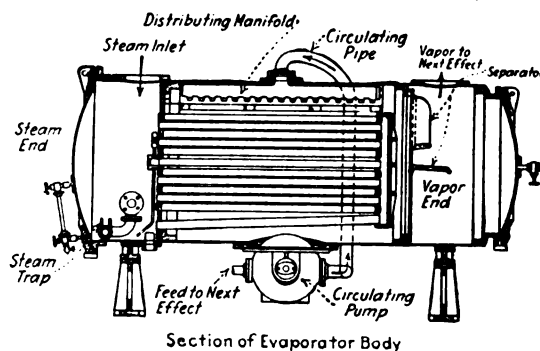
ECONOMIES:

Lillie multiple effects are adapted to use high pressure steam in the hot effects when desirable. The Lillie six effect evaporators being installed on the U. S. S. Tennessee and California were built for high pressure, 70 lbs. steam, to the hot effect, when normally they will operate under auxiliary exhaust steam, to hot effects with 26" to 28" vacuum on the cool effects, and giving rated capacity under these conditions. By running up pressures on hot effects, while maintaining vacuum on cool effects, the output may be increased greatly. To meet emergencies, the output may be increased further, if aided by certain provided-for manipulations of the plant.

Lillie multiple effects are also made to operate with as low steam pressure to hot effects as may be wanted, say to as low as 20" vacuum to the hot effect, with vacuum on the cool effect (vapor to feed water condenser) 26" or 27", or as low as may be and still condense the vapors from the cool effect by the feed water to boilers, first heating of which may be done by these vapors. In this case, nearly all the heat entering the evaporator returns to the system, either in the vapors which do this heating or in the distilled water. Any Lillie evaporator may be constructed to permit its being altered for this low initial pressure, whenever desired. This was done in many cases.

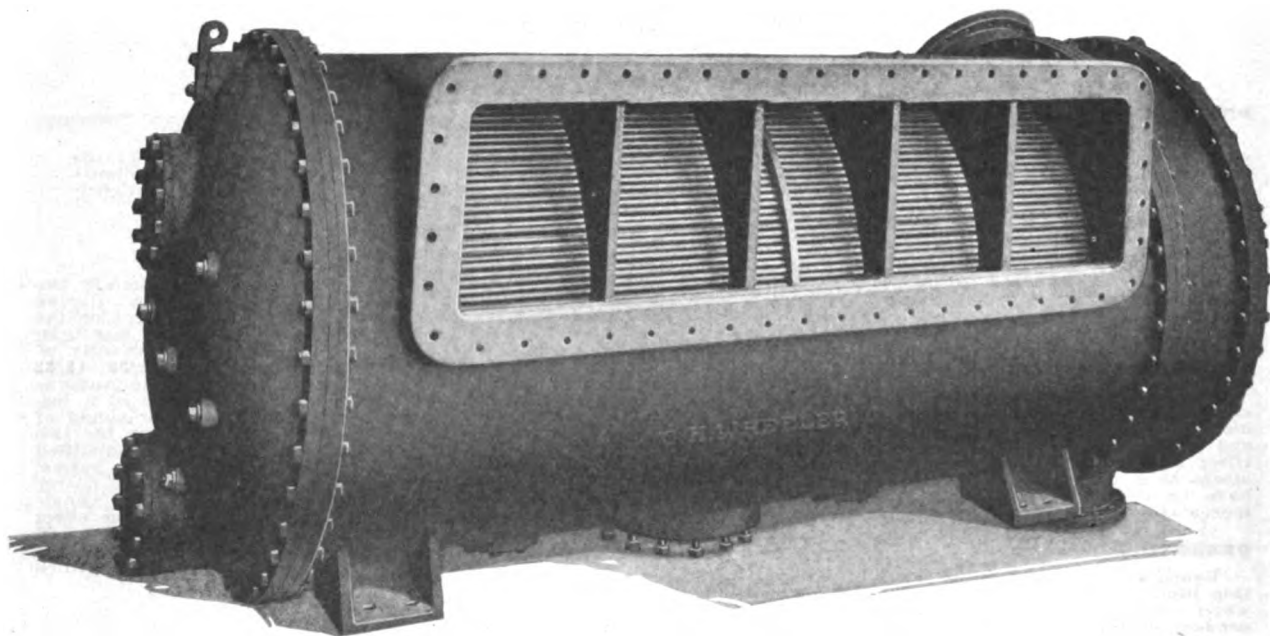


One of the Lillie Six Effect Evaporators on the U. S. S. Tennessee and California



Lillie Quadruple Effect on U. S. S. Dixie—"the most economical plant ever installed for marine use."
(Journal American Society of Naval Engineers, August, 1914.)

Surface and Jet CONDENSERS



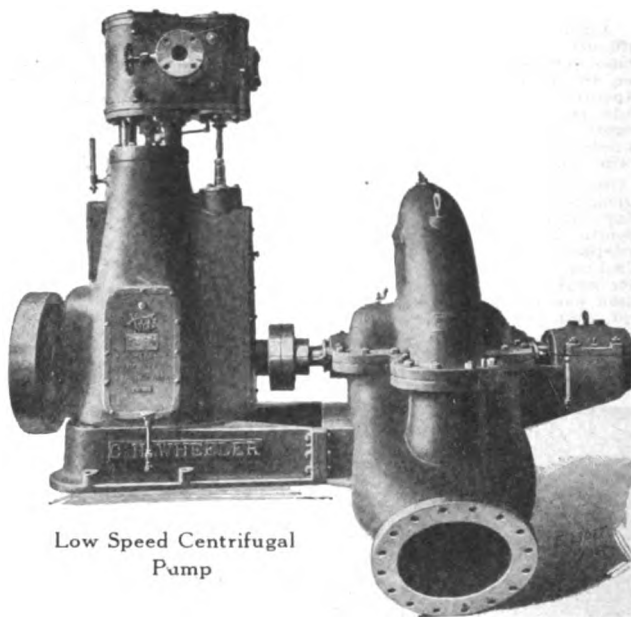
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Low Speed Centrifugal Pump

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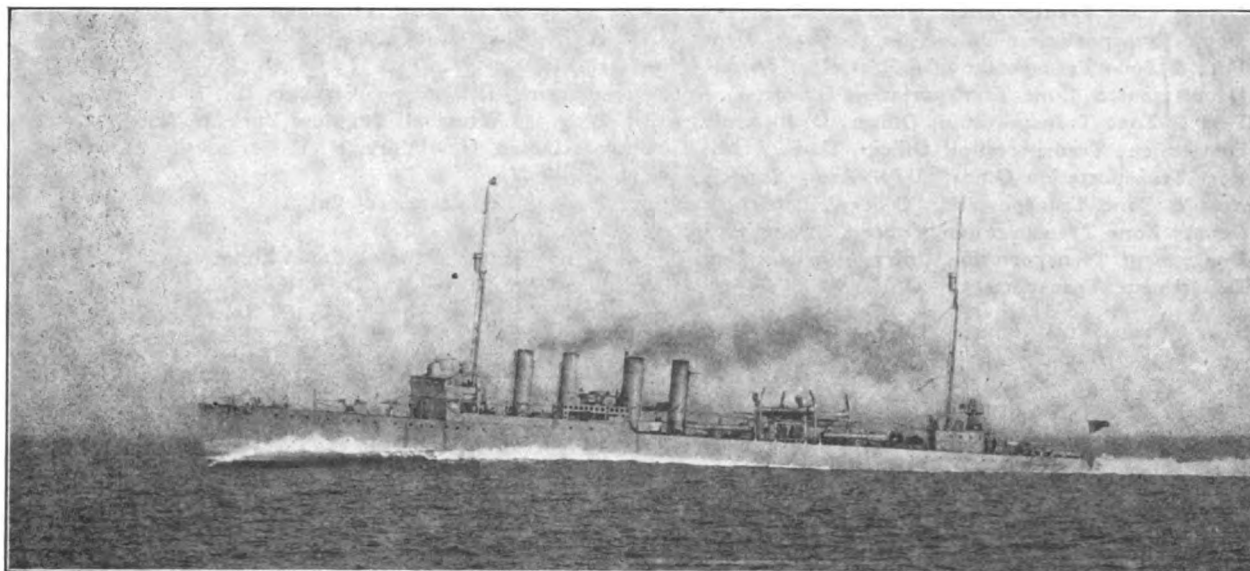
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60 U. S. Destroyers equipped with Radojets

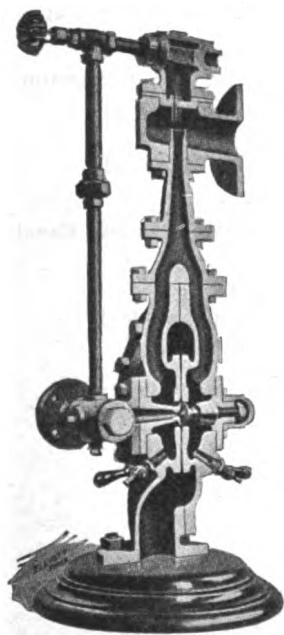
RADOJET AIR PUMPS

produce highest vacuum with lowest steam consumption—

NO MOVING PARTS — NO FOUNDATIONS —

SMALL WEIGHT — SMALL SPACE —

NOISELESS OPERATION



RADOJET AIR PUMP

Over 450 ships equipped with RADOJET Air Pumps. Due to the excellent performance and low steam consumption, the RADOJET has been selected for the air pump equipment of six battle-ships, one battle cruiser, and five scout cruisers.

We also make RADOJETS operated by exhaust steam. If you have trouble in getting good vacuum with your Twin Beam Air Pump write us; we will solve your problem.

C. H. WHEELER MANUFACTURING CO.

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Philadelphia, Pa.

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 Assistant for Water Transportation, War Department, Washington, D. C.
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 Deputy Zone Transportation Officer, U. S. A., 2620 Grays, Ferry Rd., Arsenal, Philadelphia, Pa.
 Dept. Transportation Officer, Southeastern Dept., U. S. Army, Charleston, S. C.
 Port & Zone Transportation Officer, U. S. Army, New Orleans, La.
 Department & Zone Transportation Officer, Central Department, U. S. Army, Chicago, Ill.
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 Supply Officer, Navy Yard, Portsmouth, N. H.
 Supply Officer, Naval Station, Newport, R. I.
 Supply Officer, Torpedo Station, Newport, R. I.

THIRD NAVAL DISTRICT:

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 N. Y.
 Supply Officer, Navy Yard, Brooklyn, N. Y.

FOURTH NAVAL DISTRICT:

Supply Officer, Navy Yard, Philadelphia.

FIFTH NAVAL DISTRICT:

Supply Officer, Naval Operating Base, Hampton
 Roads, Virginia.
 Supply Officer, Naval Ordnance Plant, Charleston,
 W. Va.
 Supply Officer, Torpedo Station, Alexandria, Va.
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SIXTH NAVAL DISTRICT:

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 Supply Officer, Naval Air Station, Pensacola, Fla.

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 Supply Officer, Receiving Ship, San Francisco, Cal.
 Supply Officer, Naval Base, San Diego, Cal.
 Supply Officer, Naval Air Station, San Diego, Cal.

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Supply Officer, Navy Yard, Puget Sound, Bremerton,
 Wash.

FOURTEENTH NAVAL DISTRICT:

Supply Officer, 14th Naval District, Honolulu.

FIFTEENTH NAVAL DISTRICT:

Supply Officer, 15th Naval District, Panama Canal
 Zone.

SIXTEENTH NAVAL DISTRICT:

Supply Officer, Naval Station, Olongapo, P. I.
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Excels in Yardage, Durability and Strength

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is guaranteed to meet specifications

of

U. S. Navy Department
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Canadian Government

THIS OAKUM

receives the highest classification of
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More STRATFORD OAKUM is used with
greater satisfaction as well as with greater
economy than all other makes combined, as
it contains less waste and requires less
labor to caulk

STRATFORD SERVICE AND QUALITY

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GEORGE STRATFORD OAKUM CO.

JERSEY CITY, N. J.

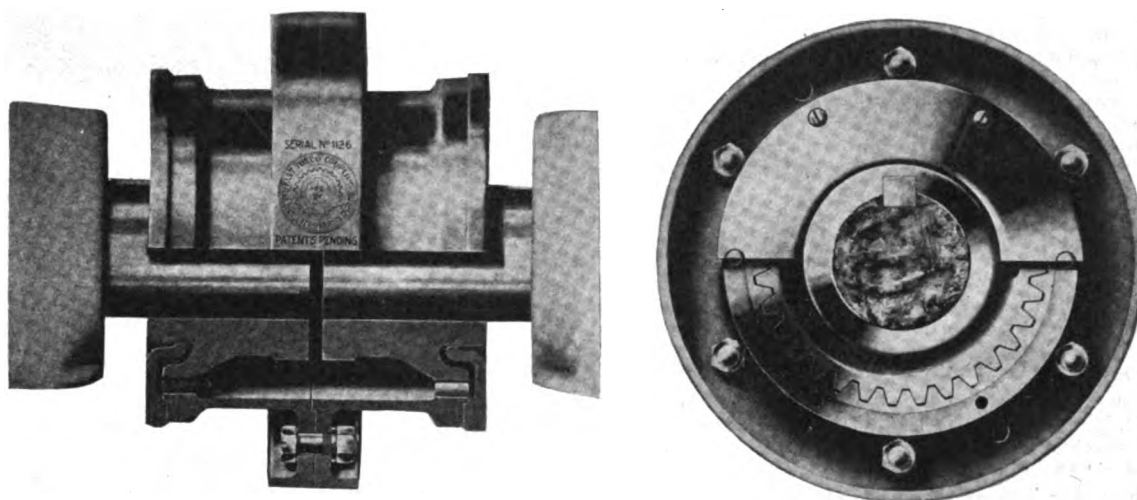
Fast Flexible Turbo-Coupling

A Self Contained Lubricated Flexible Coupling

DUST PROOF

WEATHER PROOF

FREE LATERAL MOVEMENT OF THE CONNECTED
SHAFTS UNDER THE SEVEREST LOAD CONDITIONS

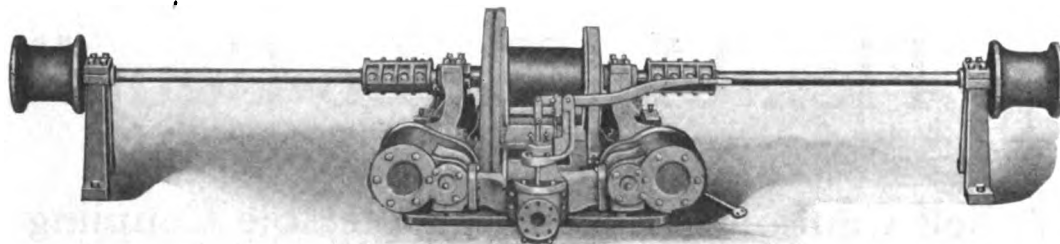


The fundamental principle of the Fast Flexible Turbo-Coupling is flexibility, due to design rather than flexibility of materials.

The flexibility of this coupling is due to a simple mechanical principle. Wear is minimized by a film of oil created by positive lubrication. It is unaffected by service conditions because it is dust-proof. Its strength can be proven because the details of design are in accord with the best and simplest engineering practice. The device is self-contained and is manufactured from materials suitable for the service required and to the closest machining tolerances.

Your coupling problems readily solved by our experienced Engineering Staff.
Our new catalog describes this coupling in detail.

THE BARTLETT HAYWARD CO.
BALTIMORE, MARYLAND



AMERICAN WINCH FURNISHED WITH OR WITHOUT EXTENSION SHAFT

Dependable Deck Machinery

THE illustrations show a number of units of deck machinery, including Winches, Windlasses, Steering Engines, Capstans, etc. Each machine is of entirely new and improved design and is replete with satisfying features. Each unit is designed for efficient operation, is substantially built, of excellent material and superior workmanship. The line is quick acting and capable of carrying an overload beyond rated capacity. This line was designed in response to the desire of the United States Government for a strictly up-to-the-minute line of deck equipment, and large government orders were received and filled. Every machine gave perfect satisfaction and the line has been highly recommended by those conversant with the design and quality.

These machines are not built a few at a time, but are manufactured in large quantities. Every casting is made on a moulding machine in our own shops, and every piece is machined in jigs and fixtures and made to minimum and maximum limit gages and templets, so that all parts are absolutely interchangeable. This is a very important feature should necessary repairs be required.

Our Windlasses are made in several sizes to suit either American or British standard chains.

Only the best material and workmanship are used, and each machine is designed to give the maximum of strength, based on the full power of the engine.

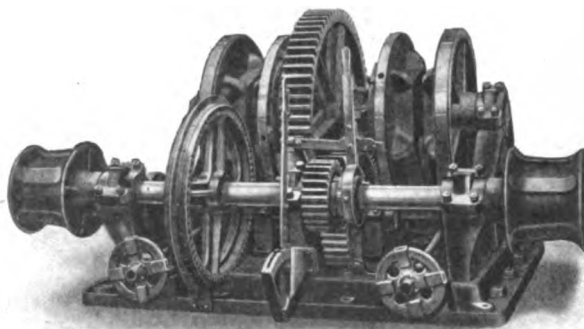
Full descriptions, prices, and deliveries will be quoted upon application. We also make other types besides those illustrated, and can furnish any type desired.

Our Marine Department is located at 516 Liberty Building, Philadelphia, Pa.

THE
HADFIELD-PENFIELD STEEL CO.

FORMERLY
THE AMERICAN CLAY MACHINERY CO.

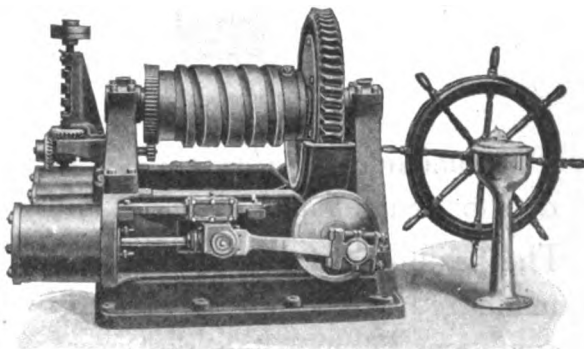
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AMERICAN WINDLASS



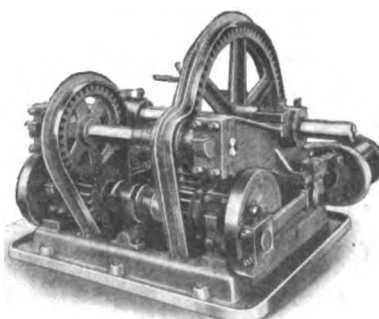
AMERICAN QUALITY



AMERICAN STEERING ENGINE



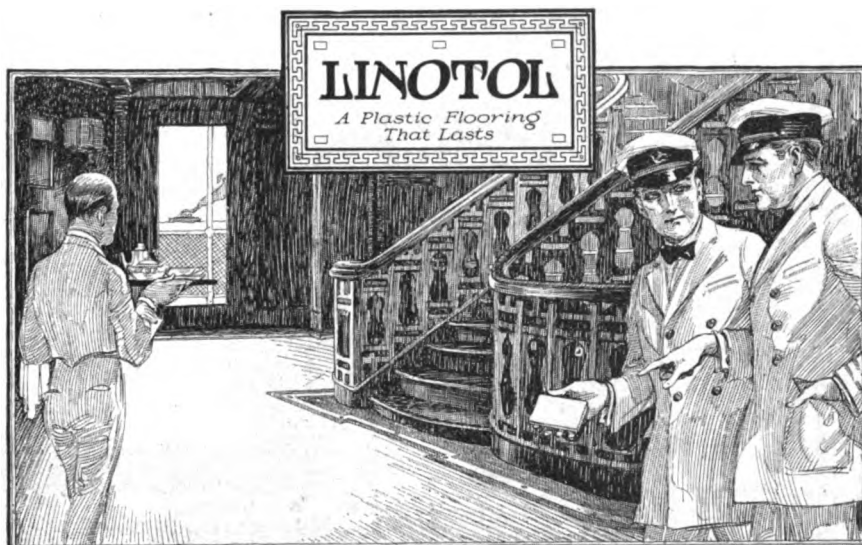
AMERICAN CAPSTAN



AMERICAN WINCH



HAND PUMP BRAKE WINDLASS



This is a Linotol Floor

LINOTOL is the supreme flooring for any purpose where resistance to hard wear, cleanliness and appearance are absolutely necessary. It is in use in more than 100 ships and many buildings.

Because of its non-porous qualities, its *durability* and *beauty*, Linotol is the flooring above all others for ships' staterooms, saloons, corridors, baths, lavatories, galleys, etc.

Linotol can be put down on wood, concrete or steel. Being laid in one solid piece from wall to wall, there are no seams to collect dirt or allow water to leak through and corrode or rot the floor beneath. *No Linotol floor has ever worn out.*

Waterproof and Fireproof

Linotol does not absorb moisture after floors have been properly oiled. It is absolutely fireproof.

Appearance

Linotol can be laid in practically any colors and in various designs.

For Business Buildings

Linotol is suitable for offices, corridors, elevators

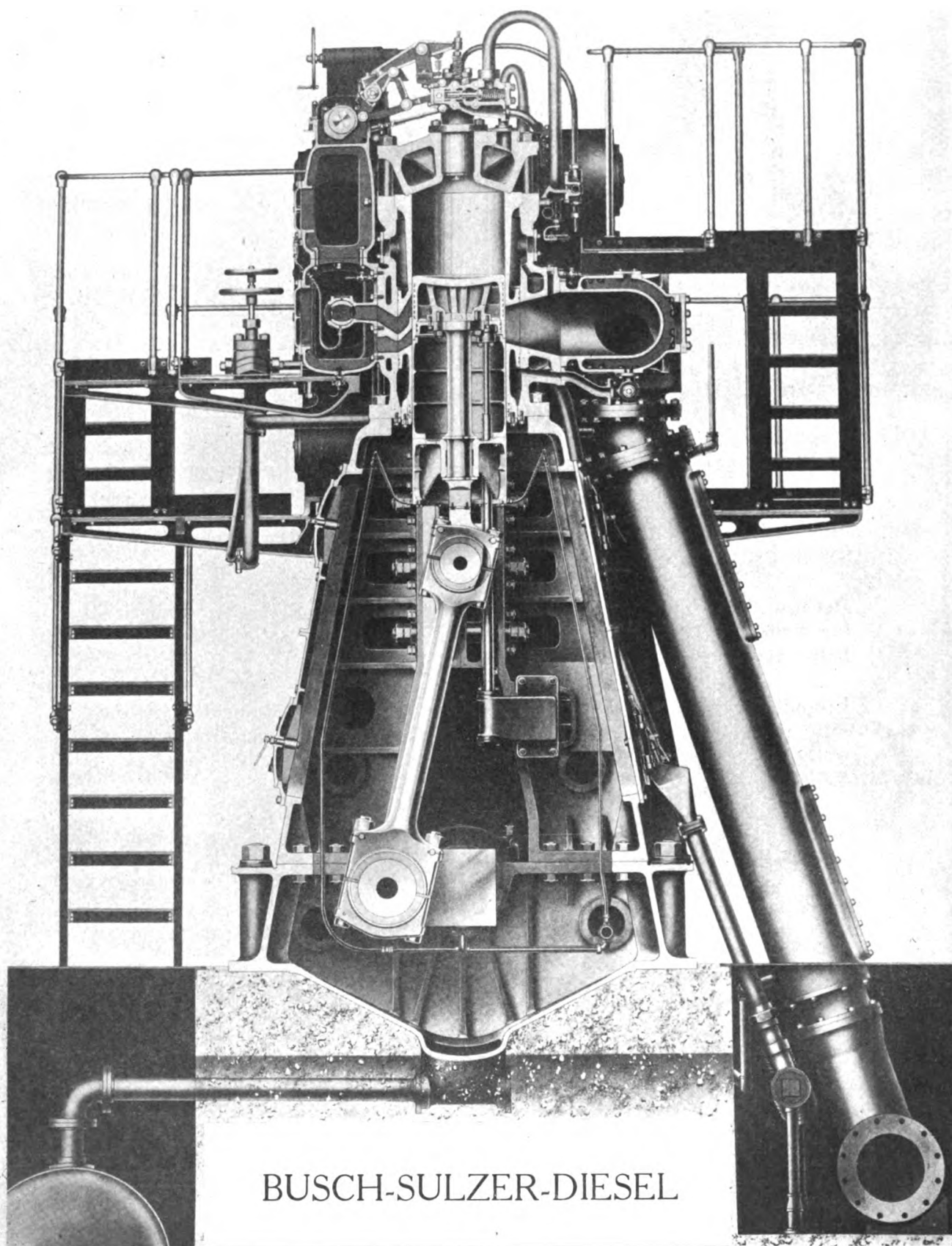
and lavatories; it will add to their attractiveness and outlast any other flooring.

The ease with which it is laid, its light weight, the short time necessary for it to set, and the low initial expense, all go to make it the cheapest as well as the most satisfactory floor you can buy.

Send us the dimensions of your floor, tell us where it is—we will tender a price without obligation.

LINOTOL FLOORING CO Inc.
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BUSCH-SULZER
DIESEL



BUSCH-SULZER-DIESEL



TWO-CYCLE DIESEL ENGINES

"The Ultimate Marine Drive"

500	S. H. P. in 4 Cylinders at 140 R. P. M.				
750	" " 6 " " 140 "				
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1500	" " 6 " " 120 "				
1800	" " 4 " " 105 "				
3000	" " 6 " " 105 "				

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AND DETAIL INFORMATION

The Original, and from 1898 to 1911 the only, American Manufacturer of Diesel Engines, the Bush-Sulzer Bros.-Diesel Engine Company is guided in design, selection of materials, and workmanship by 22 years of its own experience in building over 500 Diesel Engines, including two-cycle marine sets up to 2,000 shaft horse power—and by the experience of the well-known Swiss firm, Sulzer Freres, with whom it is in partnership affiliation.

BUSCH-SULZER BROS.-DIESEL ENGINE COMPANY

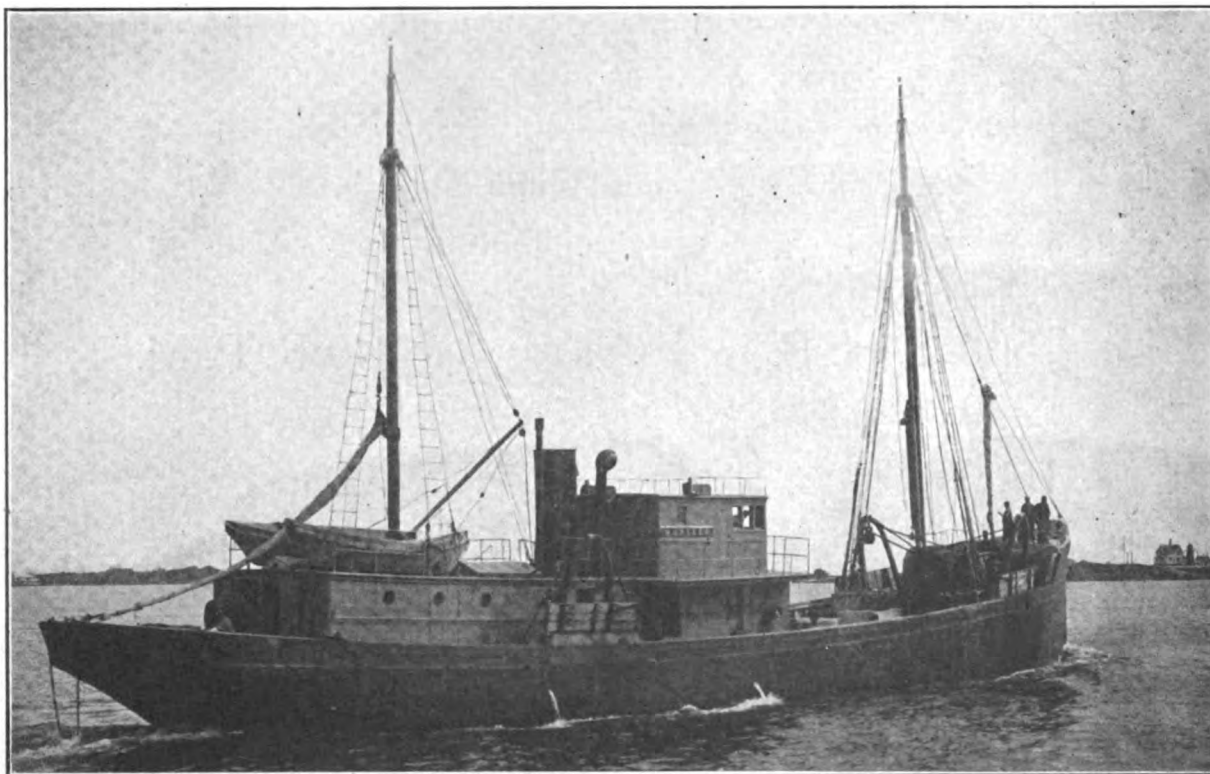
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This same type of drive is now being installed in a 5300 D.W. Ton
 Ship for freight service

Full particulars on the Diesel-Electrive and Direct Drive
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**HEAVY DUTY DIESEL TYPE
 MARINE AND STATIONARY OIL ENGINES**

Over 150,000 B. H. P. in service or on order

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120 B. H. P.	360 B. H. P.	800 B. H. P.
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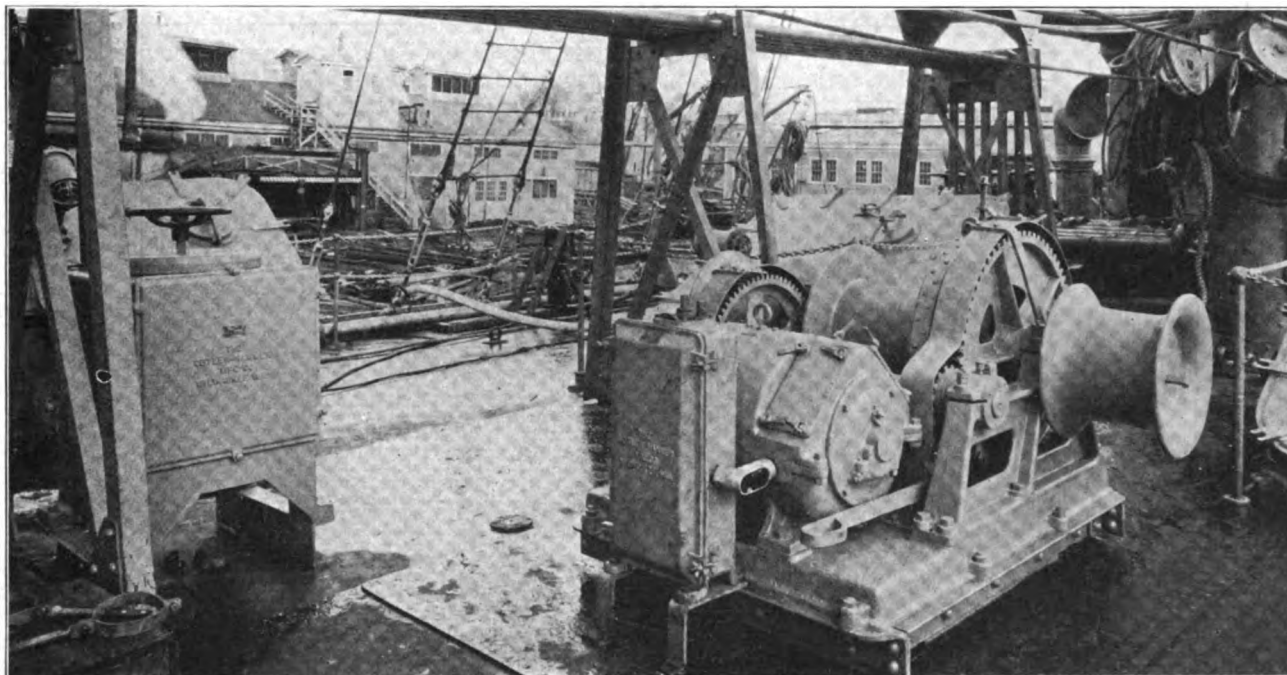
**Main Office and Works:
 GROTON, CONN.**



You know what steam will do. Why not familiarize yourself with the successful applications of electricity which have been made to propulsion in various forms and to every auxiliary used aboard ship?

Perhaps you are wondering where this information can be obtained. The Cutler-Hammer Mfg. Co.'s files contain a wealth of data on these subjects and the answer to your problem can probably be found there.

The installation shown below illustrates one type of control for winch service. This winch, on the "Solitaire," is supplied with watertight dynamic lowering drum control and separately mounted "watertight idle, ventilated to run" resistor. The equipment is rated at 25 HP 230 volts.



We are manufacturers of motor controlling devices of every type for marine service, and in a position to give information and quotations on complete electrical equipments for propulsion and ship auxiliaries. Why not permit us to assist you?

THE CUTLER-HAMMER MFG. CO.

Marine Department Headquarters

50 Church Street, New York

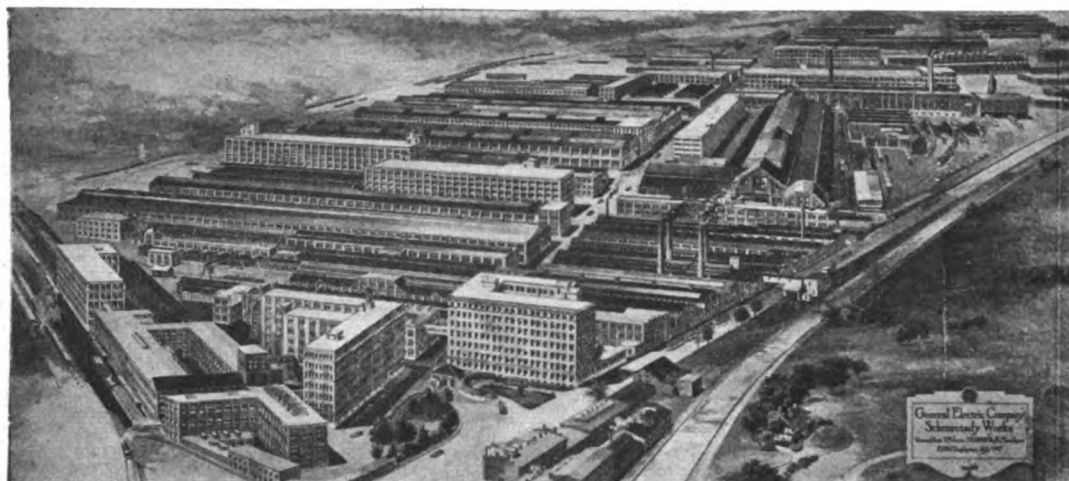
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GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.



S. S. "PACIFIC"

Propelled by 2500-h. p. G-E Marine Geared Turbine. In Successful Service Since Dec., 1915

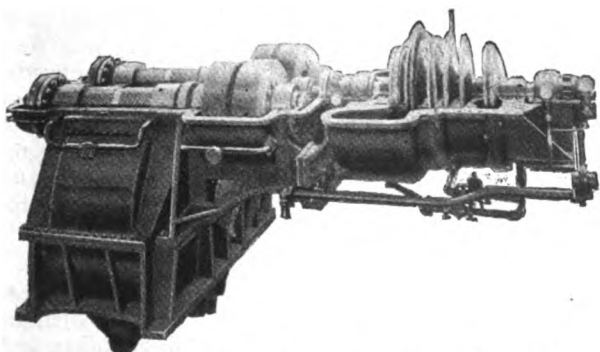
Marine Geared Turbines

The General Electric Company was the first to produce high speed marine propelling turbines, with double reduction gearing. The relatively low-speed turbine, with single reduction gear showed by comparative tests a reduction in steam consumption of 19 per cent, as compared with the reciprocating engine. A further reduction of 14 per cent was accomplished by the use of high-speed turbines with double reduction gearing.

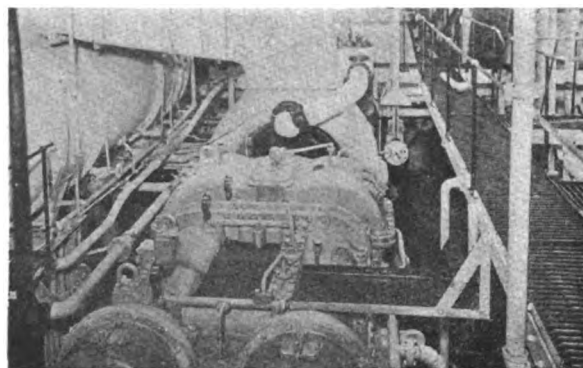
Before the war had forced factories into a reckless rush, the General Electric Company equipped the six steamships, *Pacific*, *Sucrosa*, *Eurana*, *Niels Nielsen*, *Hanna Nielsen* and *Milero*, with Curtis Turbines and Marine Gears of the two-plane double-reduction type which the company introduced.

The propelling equipment in every one of these ships except the tanker *Milero*, which sank in a storm after three years of perfect service is gaining repute for reliability, efficiency, economy and flexibility of operation. Their combined mileage on June 1, 1920, totalled 1,057,326 miles.

This pre-war type of equipment was successful, but not satisfied with that, the General Electric Company's engineers have found ways of improving it. Gear-tooth shapes have been altered and pressures decreased 15 to 33 per cent. The over all gear length has been lessened, sturdy weight has been added and a higher degree of flexibility attained in the gears by slip type pin couplings with floating bushings. The gear lubricating system has been improved. Casings have been made more rigid, and hinged covers of ample size give greater accessibility for inspection.



G-E 2-plane Type Marine Geared Turbine—Upper Halves of Casings Removed



G-E Marine Geared Turbines Installed in S. S. "Spalding"

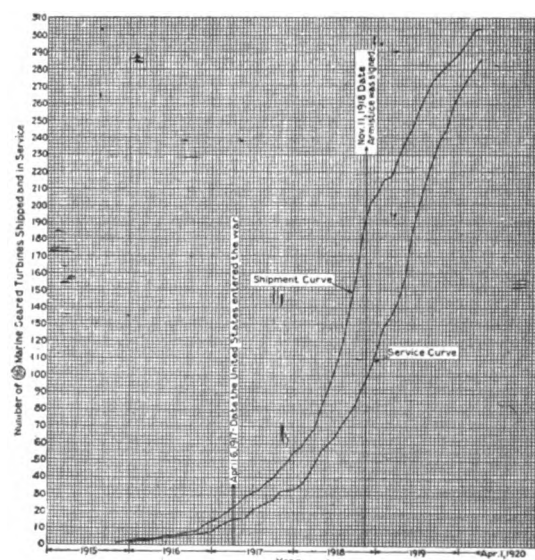
The 1920 two-plane type, double reduction marine gear is made in standard sizes from 2,000 to 4,000 horse-power.

Electric Ship Propulsion

The next forward step in ship propulsion was the introduction of electric drive as evidenced by the successful operation of G-E Electric Propelling Equipment on the U. S. collier *Jupiter*, installed more than six years ago. A six-year test of this method of propulsion on the *Jupiter*, a ship of the merchant type, has proved very successful.

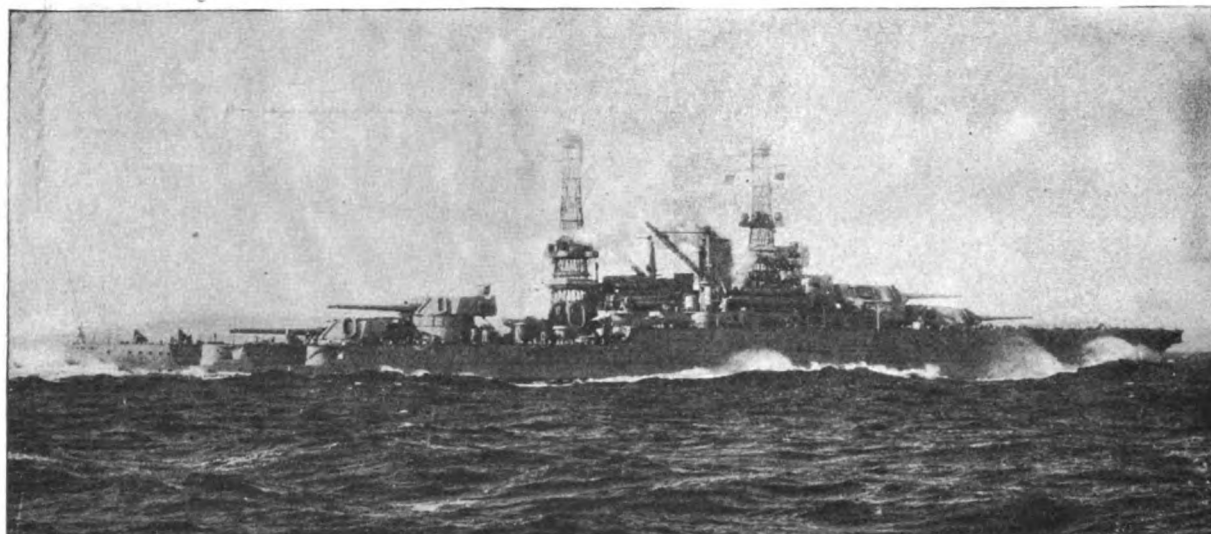
Electric drive for large vessels became a fact with the successful trials of the U. S. S. *New Mexico*, the first ship of thirteen new dreadnaughts and six battle cruisers, all to be electrically propelled. This battleship has a displacement of 32,000 tons and a speed of 21 knots. Each of the four propellers is driven by a direct-connected 7000-horsepower G-E motor, receiving current through a central control station from two G-E Curtis Marine Turbine Generator sets.

Each of the two main turbines is connected to an A-C. generator, having two poles. The four propelling motors are of the induction type and are so wound that by suitable changes of connections,



Merchant Ships Equipped with G-E Marine Geared Turbines

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.



U. S. S. "New Mexico" at 21 Knots Driven by G-E Electric Propulsion Machinery

effected by switches on the control board, the windings can be arranged for either 24 or 36 poles. Two ratios of speed reduction between the turbine-generator and the propeller, approximately 12:1 and 18:1, are thus provided. These ratios give speeds of 17 knots and 15 knots, respectively, when using only one turbine-generator. Speeds above 17 knots require the use of both generating units.

Operating Advantages of Electric Drive

The flexibility of electrical operation permits the main turbine generators to be run at practically their maximum efficiency over a wide range of speed variation, which is very advantageous in naval maneuvers requiring varying speeds. As compared with the U.S.S. *Pennsylvania* driven by direct-connected turbines, the *New Mexico* uses from 20 to 30 per cent less fuel at speeds above 15 knots. In the average cargo vessel a saving in steam consumption of the same percentage can be effected over the reciprocating engine.

With electric drive, each unit of the propelling equipment can be isolated in its own watertight compartment. Any unit might therefore be destroyed in battle and the ship could still go on at a reduced speed.

Experience has shown the extreme reliability of electrical apparatus and that the parts liable to damage can be quickly and easily replaced or temporarily connected so as to be operative. Automatic means can be provided which, by interrupting excitation, guard against any possibility of serious damage through possible accidents.

In many respects the machinery used to propel a ship is simpler than that commonly used for lighting and for driving auxiliaries. Electric drive simplifies the work of the operating force and makes ships less dependent on the skill and resourcefulness of crews.

Since the electrical power is transmitted through cables from the engine room amidships to the motor compartment in the extreme stern, the shaft and shaft alley are entirely eliminated. The lessening of the space required for the engine room over a reciprocating engine installation still further increases cargo space.

Internal Combustion Engine Electric Drive

The General Electric Company is in a position to supply electric generators for direct connection to internal combustion engines for the propulsion of vessels by the electric system, as well as electric motors for use with all types of auxiliaries used aboard boats so propelled.

Electrically-driven Auxiliaries

Because of the dependability and ease of control motor drive is rapidly being adopted for many auxiliaries on shipboard. This Company is fully equipped to co-operate with shipbuilders in the selection and manufacture of motors and control apparatus best suited to any specific installation.

G-E Co-operative Service

At the service of ship operators and shipbuilders is the same engineering and designing staff which, in co-operation with the Navy Department, developed the equipment of the *New Mexico*. Complete plans and proposals for electric drive in merchant ships can be submitted for any contemplated vessel. The Company maintains also a corps of marine inspectors and skilled construction foremen who are promptly available upon request.

Steam Engine-driven Generating Sets

The line of small direct-connected Steam Engine-driven Generating Sets manufactured by the General Electric Company was designed to meet the severe conditions of marine work, which demand light, compact and durable sets of close regulation and quiet operation. They are also adapted for both power and lighting in shipyards.

In addition to their many specific points of superiority, those sets have a great advantage in being manufactured complete at one factory, which insures perfect fit, uniformity of finish and a thorough test of the combined unit before shipment.

Construction

Perfect alignment, balance, smoothness of operation and ability for long running periods without continued attention, ease of interchangeability and adjustment for wear are insured by the accurate construction of all parts.

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

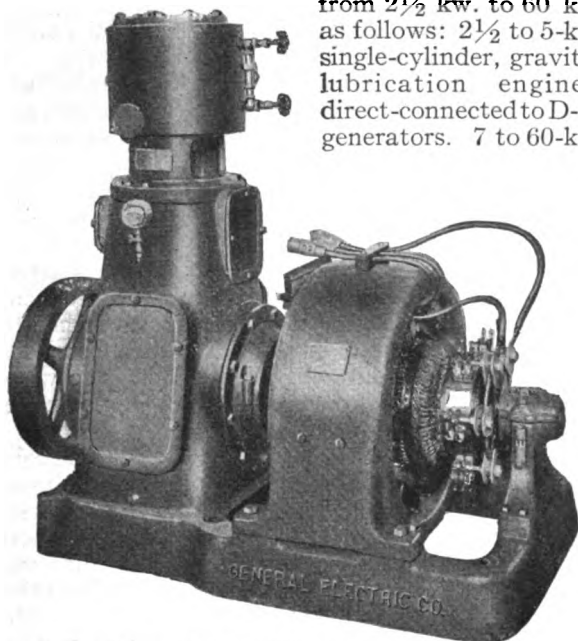
The bedplate is carried out to the full width of the generator frame, making an ample base surface for the foundation without increasing the floor space required.

The base is not designed to be self-supporting and the foundation must be so constructed as to prevent deflection. In the smaller sizes the design is simplified by casting the column integral with the bedplate.

Automatic relief valves, as well as separate hand-operated drain valves, are fitted to each end of the cylinder.

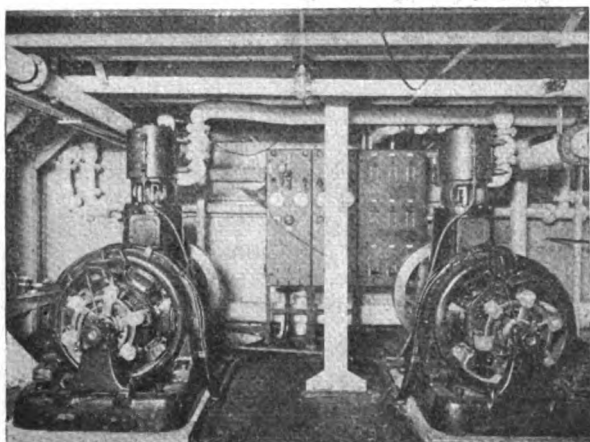
Standard Sizes

These sets are made in standard sizes ranging from $2\frac{1}{2}$ kw. to 60 kw. as follows: $2\frac{1}{2}$ to 5-kw. single-cylinder, gravity-lubrication engines, direct-connected to D-C. generators. 7 to 60-kw.



Steam Engine-driven Generating Set

single-cylinder, forced-lubrication engines, direct-connected to D-C. generators. 25 to 60-kw. single-cylinder, forced-lubrication engines, direct-connected to A-C. generators, with or without direct-connected exciters mounted on base extension, or with shaft extension for pulley when using belt driven exciters.



Two Standard G-E Steam Engine-driven Generating Sets Installed on Steamer "War Baron," formerly the "Ellen Kloster"

Generators

The generators are regularly wound for line voltages between 110 and 125 volts and may be flat compounded or over compounded for any line voltage between these limits. Generators for other voltages can be furnished on special order.

The generators will operate continuously under full load with a temperature not exceeding 40 degrees C. on any part of the machine with the exception of the commutator which will not exceed 45 degrees C. On a one-hour overload the temperature rise will not exceed 55 degrees C. An overload of 50 per cent may be carried momentarily without injurious heating. Where required three-wire generators can be supplied.

Material and Workmanship

These sets are similar to those built for the United States Navy, for which a large number have been furnished by the General Electric Company. More detailed information is given in Bulletin 42300.

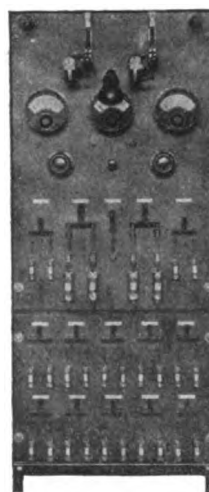
Information regarding the standard single-cylinder engines with alternating-current generators will be supplied on request.

Marine Switchboards

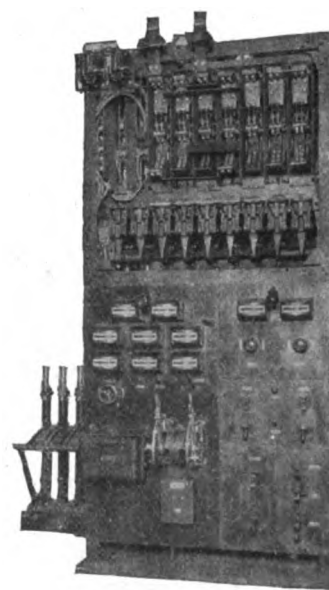
Lines of G-E switchboards have been specially designed for controlling electrically and steam-propelled merchant ships and for controlling generators and distribution circuits aboard such vessels. Several of these have already been furnished the Emergency Fleet Corporation.

Panels can be selected to suit all ordinary conditions. For any condition which these designs will not meet, the General Electric Company is prepared to submit promptly designs and specifications exactly adapted for the work.

These switchboards are designed and built by the same organization which produced the specialized control boards for the *New Mexico* and those being built for other electrically-propelled



Panel for Steam Engine-driven Generating Set



Control Panel for Electrically-propelled Merchant Ship

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

U. S. Navy vessels, and they are of the same high quality throughout.

The panels are mounted on angle iron frame. Frame may be supplied by the shipyard, if desired. Rubber packing is placed between panel and frame.

The feeder switches are of 60-ampere capacity for most rugged construction. Fuse clips are 30-ampere capacity, unless otherwise specified.

All instruments are manufactured by the General Electric Company and are of the highest quality throughout.

All panels meet the requirements of the American Bureau of Shipping.

Inquiries addressed to the nearest office will receive prompt attention. To save time, the following data should be given in all inquiries:

Number, kilowatt capacity and voltage of generators.

Number of feeder circuits; with approximate individual load, if over 30 amperes.

Markings for name plates.

Whether shipyard will supply angle iron framework.

Number of fuses desired, including spares.

G-E Searchlights

The General Electric Company manufactures a complete line of searchlights which meet fully the demand for durable, efficient and reliable projectors. There are two types: an 18-in. incandescent lamp, 1000-watt, 110-volt, searchlight, and the Arc Lamp type described below. Rheostats are provided with each arc projector to adjust current to its proper value.

The standard commercial sizes of Arc Lamp searchlights are 9, 13, 18 and 24 inches in diameter, but larger projectors of 30, 36, 60 and 80 inches in diameter are manufactured and can be supplied on special request.

Projectors arranged for hand and pilot-house control are regularly kept in stock for immediate shipment. Projectors arranged for shaft control, rope control and electric control can be provided, when desired.

In the hand control projectors the beam of light can be trained vertically or horizontally by means of handles on the sides of the barrel, and a star



36-inch Searchlight Mounted on a Skeleton Mast

wheel mounted on the trunnion acts as a locking device by means of which the barrel of the projector may be held at any desired angle. This form of control is intended for use where the projector is located directly on the deck or within convenient reach of the operator.

Where the projector is installed on the top of the pilot-house, an arrangement from within is provided by which the beam can be moved either horizontally or vertically, by a single lever, within easy reach of the pilot. The projector may be locked at any desired angle by simply turning the handle of the lever until it binds against the quadrant.

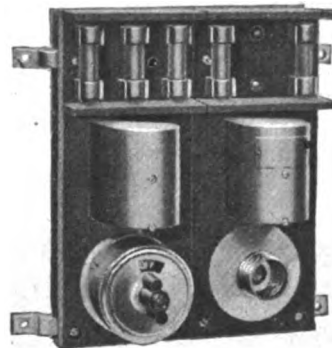
Shaft control is by means of two shafts, one within the other, with suitable handwheels and gearing which gives complete control of the searchlight beam.

In the rope control projectors the handle and quadrant of the pilot-house type are removed, and the rod, fitted with two pulleys, is rope-connected to a simple controller mounted in the pilot-house or other desired location. The controller, by means of a single handle, gives full control of the beam in both directions.

A more expensive, but more satisfactory form of distance control is provided in the electric control projector, in which the training is accomplished by two motors mounted in the base and electrically connected to a small controller, which is so wired that the searchlight beam follows the movement of its handle in any direction.

This system requires less attention and is easier to operate than the rope control and has the great advantage over the latter that the controller wiring may be run by the most convenient route without regard to obstructions or changes of direction which may form serious difficulties in the other systems. Bulletin 43856A.

Running Light Telltale Boards



The General Electric Company has designed Running Light Telltale Boards to indicate the failure of running lights by visible and audible signals. These boards are provided with switches to throw into the circuit a spare lamp in each lantern.

The boards are made up of individual panels. The right-hand panel contains the incoming lines, the buzzer and the receptacle for the warning lamp; the other panels contain the relays and switches for the running lights. Additional relay panels may be added at any time.

Send for Bulletin 69011.

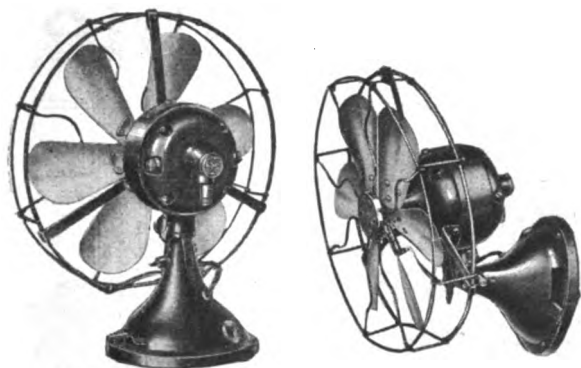
G-E Fans for Marine Service

G-E Direct-current Electric Fans for marine service are particularly adapted for use on board vessels. They are quiet in operation, light in weight, very efficient, and durable. The motors are enclosed, the iron base and motor cage are heavily enameled, and the fan blades and cage are

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

of brass thoroughly lacquered, thus making the fans immune from the effects of exposure to dampness and salt air.

These fans may be readily converted from desk to bracket type as shown in the illustrations. They are arranged for three operating speeds, with "off" position. The control switch—which is mounted in the base—is of the improved lever design with notched guide insuring a positive setting for each speed.



12-inch Marine Fan for Desk or Wall Mounting

These fans are furnished with six blades in nonoscillating types. They can be furnished for any popular voltage direct current and will operate over a range of 5 per cent above or below the normal voltage.

The power required at fast speed is 45 watts. Net weight, 14 lbs.

Standard G-E Electric Fans

G-E Standard Alternating and Direct-current Fans are made with four blades oscillating or non-oscillating in nine-inch, twelve-inch and sixteen-inch sizes. The twelve-inch and sixteen-inch oscillating fans are also made with six blades. Ceiling fans are equipped with four blades in 32-inch and 52-inch sizes.

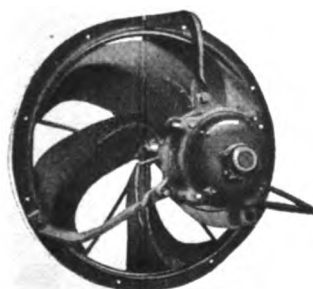
These fans are furnished to operate on either 110 or 220 volts alternating current with frequencies within the range of 25 to 60 cycles. They are adapted for use wherever electric current is available.

Exhaust Fan Outfits

These motor-driven exhaust fan outfits are self-contained units adapted for various ventilating purposes aboard ships. Fans of this type have been installed with satisfactory results in vent ducts from engine and boiler rooms to insure proper circulation of air under all conditions.

They are also well adapted for ventilating plants and office buildings on shore and for use where it is desired to remove dust and smoke from buildings, such as woodworking and forge shops.

Bulletin 41801.



Propeller Fan with Alternating-current Motor



Ventura Disk Fan with Direct-current Motor



TRADE MARK
The Guarantee of
Excellence
on
Goods Electrical

Other G-E Products

The products of the General Electric Company comprise practically every kind of apparatus and machinery used in the generation, transmission, distribution and utilization of electrical energy. In the electrical equipment of ships, docks, or shipyards, therefore, it is possible to standardize almost completely with G-E equipment. By this procedure much time can be saved, and a single organization is responsible for the proper interrelation of all of the electrical equipment.

Below is a partial list of G-E products covering the machinery most applicable to the marine field. Descriptive bulletins are referred to which, together with other information, will be furnished upon request.

	Bulletin No.
Air Compressors.....	48609
Battery Charging Equipment.....	*
Cable, electric.....	*
Circuit Breakers.....	*
Control Equipment for Motors.....	*
Converters, rotary.....	42500
Fans, cooling.....	B3553
“ ventilating.....	41801
Flow Meters.....	46501C
Furnaces, electric heat treating.....	*
“ “ soldering iron.....	69702
“ metal melting, electric.....	*
Gears, “Fabroil”.....	48703A
“ marine turbine.....	*
Generators, A-C. or D-C. belt-driven...	40020
“ waterwheel-driven.....	40600
Generating Sets, Steam Engine-driven..	42300
“ “ Steam Turbine..	42201A 42010
Glue Pots, electric.....	49103
Instruments, electrical.....	*
Insulating Compounds.....	48704
Lamps, arc and incandescent.....	*
Lead Burners, electric, “Pyrotip”.....	B3549
Locomotives, storage battery.....	*
Melting Pots, metal.....	69703
Meters, electrical.....	*
Motor Generator sets.....	42552A
Motors, Crane and Hoist.....	68100A
“ D-C. constant speed.....	41013
“ D-C. variable speed.....	41021A
“ Induction.....	41302A
“ Mill Type.....	48121.1
“ Synchronous.....	41309
Regulators, voltage.....	45450
Rivet Heaters, electric.....	69701
Searchlights.....	43856A
Sherardizing Ovens, electric.....	48926
Soldering Irons, electric.....	B3571
Switchboards.....	47001
Telltale Boards, Running Light.....	69011
Tempering Baths, oil.....	69700
Transformers, bell ringing.....	*
“ distribution.....	45110A
Turbines, mechanical drive.....	62010
Welding Sets, electric arc.....	48932A
Wires and Cables.....	*
Wiring Devices.....	Y 1270

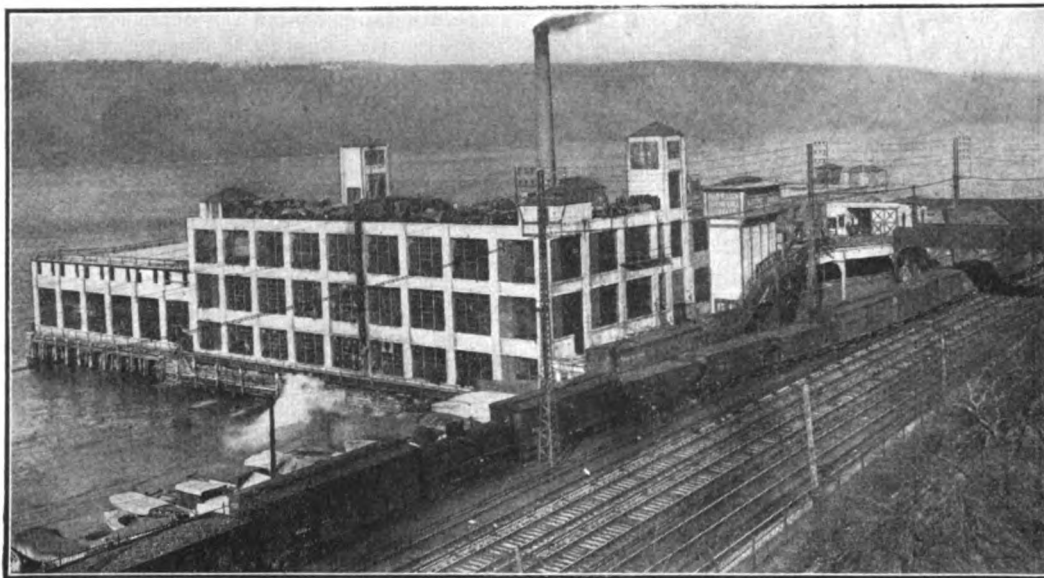
* Address nearest office for information.

GENERAL ELECTRIC COMPANY. SCHENECTADY, N. Y.

HABIRSHAW

"Proven by the test of time"

Insulated Wire & Cable



Glenwood Plant of Habirshaw Electric Cable Company

Reliability and Progress

MARINE ENGINEERS are now developing new standards for ship wiring. The Marine Committee of the American Institute of Electrical Engineers and other authoritative bodies are engaged in the preparation of specifications.

Habirshaw, with its finely equipped Electrical and Chemical Research Laboratories, and thirty-four years of experience in wire manufacture, is doing its part in this work and is prepared to assist marine engineers in the solution of their problems.

Many important ships have been wired with Habirshaw Code or 30% hevea wires, basket weave cables, deck cables, control cables, etc.

Habirshaw Wire Manufactured by
Habirshaw Electric Cable Co.
Incorporated
10 East 43rd Street, New York



Habirshaw Wire Distributed by
Western Electric Company
Incorporated
Offices in All Principal Cities

Paper Insulated Cable
Round Conductor Cables
Sector Cables

Varnished Cambric Insulated Cables
Armored Cables

Rubber Insulated Cables
Code (Black Core)
Intermediate (Red Core)
30% Hevea R. S. A. Standard

THE **SIM** LINE

CONVERTIBLE Marine Electric Fixtures and Watertight Boxes



DBDC



ULC-I



C-6



C-1



C-5



C-4



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C-57



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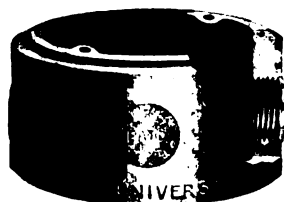
UTC-1

Standard Types—New Features

Simplifies and expedites the installation and greatly reduces the cost of labor.

Makes up a substantial high-class job of a strictly standard character.

Besides saving real money in the original installation S-M Fittings benefit the Ship Owners because addition or changes may be made without disturbing the original work. Contrary to usual practice of manufacturers that renewals must be of their particular make the S-M Line allows the use of most any standard type of wiring devices readily procured in the open market.



(Patented and Patents Pending)

S. M. UNIVERSAL CONDUIT BOX

The only "knockout" box in the market that leaves a threaded outlet ready for pipe by simply knocking out a plug.

A Universal Conduit Box that combines both an Outlet Box and Fixture Body.

Reduces stock assortment, usually provided, about 60 per cent. and insures against excess accumulation.

All customary combinations may be made by your electrician or stockkeeper with the few interchangeable parts. May be used for Junction, Switch, Plug, Receptacle, Angle or Pendant Fixtures. The illustrations show interchangeable parts and some of the combinations.

20 units make up over 1,000 possible combinations.

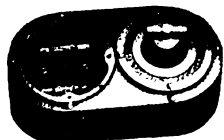
Send for Catalog 15-S. C.

SEIDLER-MINER CO., Inc.

ESTABLISHED 1891

DETROIT, U. S. A.

Stock carried New York, New Orleans and San Francisco



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42



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Cable Address:
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THE GRISCOM-RUSSELL COMPANY

FOUNDED 1867

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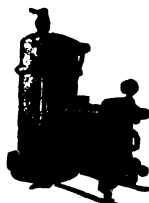
Manufacturers of EVAPORATORS—OIL and WATER HEATERS— GREASE EXTRACTORS—OIL COOLERS—STEAM, OIL and AIR SEPARATORS

LARGE STOCKS COMPLETED UNITS READY FOR SHIPMENT CARRIED AT MASSILLON, NEW YORK
AND SAN FRANCISCO

Reilly Evaporator— Self Sealing

Practically standard for the U. S. Navy and Merchant Marine.

Steam is the evaporating medium. Furnished in capacities of from 9 to 80 tons (8 to 72 t.) of fresh water per 24 hours' operation.



Reilly Evaporator
Self Sealing

Reilly Feed Water Heater— Closed Type

Heating medium steam. Cast iron shell. Seamless drawn copper coils for heating surface. Furnished in any size required.



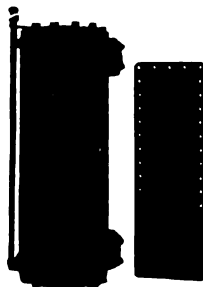
Reilly Heater
Showing by-pass valves

By-Pass Valves

Shown in illustration of Feed Heater are necessary to assure uninterrupted flow of feed water during Heater repairs and inspection. Supplied as an extra for Single Pass and Two Pass Heaters.

Reilly Distiller

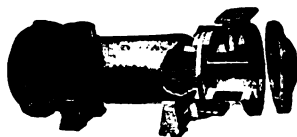
A special type of condenser for condensing, in tinned copper coils, pure vapor from the evaporator, thus insuring pure potable water. Special coil joint construction prevents leakage of salt water to distilled water chamber of distiller.



Reilly Distiller

"G-R" Instantaneous Heater

For heating boiler feed water or supplying hot water for general service. Heating medium is steam. Shell of cast iron and heating surface of straight seamless drawn brass tubing. Note floating head construction which prevents strain on tube joints during expansion or contraction.



Instantaneous Heater

Reilly Fuel Oil Heater

Designed to secure efficient and complete combustion of heavy fuel oils by heating them before feeding to burners. The oil passes through coils of seamless drawn steel tubing, high pressure steam being supplied to the shell. Condensation (steam) usually returned to the boilers.

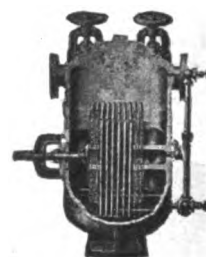
Contamination of the condensed steam is prevented by having all oil joints outside of steam space.



Fuel Oil Heater

Multiscreen Filter

is a screen type grease extractor for preventing contamination of boiler feed water and serious damage to boiler.



Feed Water Filter

Multiwhirl Oil Cooler

for cooling lubricating oil used in bearings, gears, etc., and in metallurgical operations. *No appreciable pressure loss due to helical baffle for directing oil flow.* Practically standard in Navy and Merchant Marine.



Oil Cooler

Stratton Steam Separator

Steam and water pass through a helical path, giving a whirling motion which causes the heavier water to be thrown out by centrifugal force. Dry steam only enters machinery. Built of cast iron or cast steel, depending on service required. Supplied with any type inlet or outlet to suit pipe connections.



Stratton
Steam Separator

Bundy Oil Separator

is a multiple baffle type separator with removable baffles for cleaning. Prevents contamination of feed water and corrosion of piping and heating systems. Efficiency proved by over twenty years' of successful service.



Bundy
Oil Separator

Stratton Air Separator

Designed to remove the water from compressed air. Dry air increases the efficiency of pneumatic tools, sand blasts, etc. Separator is simple in construction; no movable parts; minimum attention to operation required. Furnished in cast iron to 200 lbs. working pressure and in various types of inlets and outlets to suit conditions.



Stratton Air Separator

R. & D. "PARACOIL"

Feed Water Heaters and Evaporators

ROW & DAVIS, ENGINEERS, INC.

Consulting and Contracting Engineers

"PARACOIL" Feed Water Heaters, Evaporators,
Condensers, Distillers, Ash Ejectors, Feed
Water Filters, Grease Extractors.

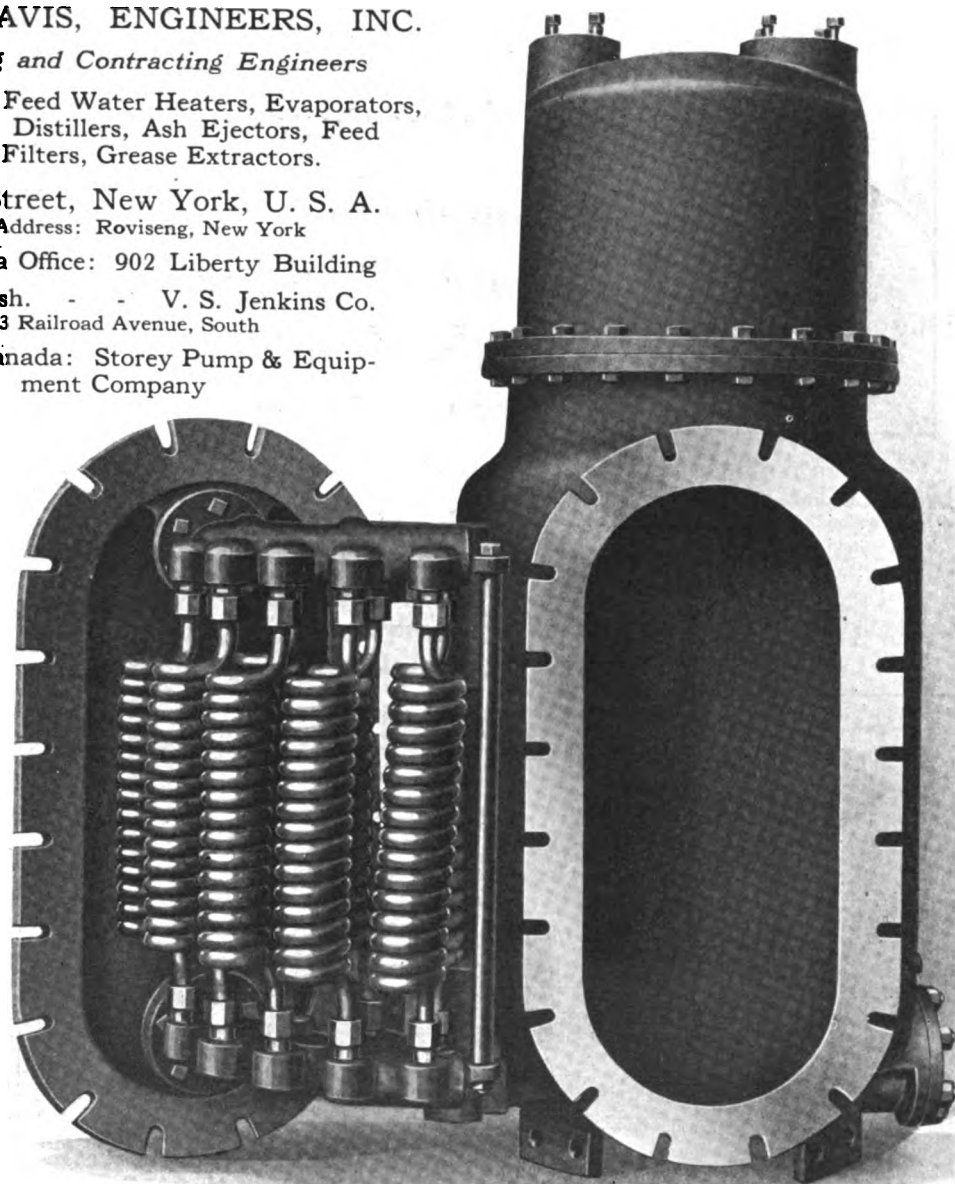
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**Toronto, Canada: Storey Pump & Equip-
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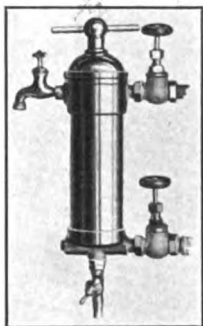
THE FILTRINE MFG. COMPANY

"K-SYSTEM" FILTERS

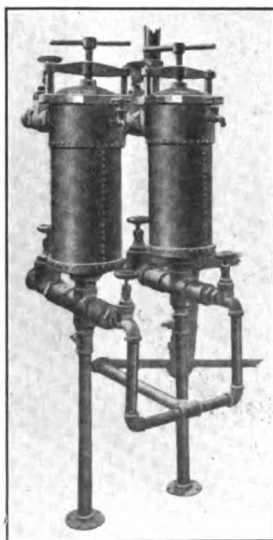
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EFFICIENT AND RAPID FILTRATION FOR EVERY PURPOSE



NO. A FILTER
Single or Multiple Units
4 to 24 gallons per minute
Total weight 25 pounds



NO. B FILTERS
Single or Multiple Units
15-100 gallons per minute
Total weight 80 pounds

Advantages:

1. *Simplicity*
2. *Large Capacity*
3. *Light Weight*
4. *Compactness*
5. *Constantly of Highest Efficiency*

BECAUSE OF THE ABOVE ADVANTAGES

"K-SYSTEM" FILTERS

ARE USED ON THE MAJOR SHIPS OF
THE FOLLOWING LINES:

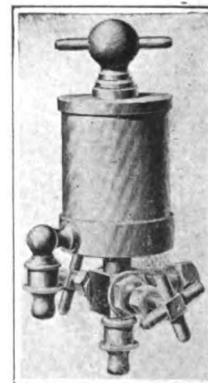
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USED AND APPROVED BY U. S.
SHIPPING BOARD

WE SOLICIT YOUR INQUIRIES



FILTER COOLER
Attach it to the building
supply and waste



No. 1 FILTER
Takes place of faucet
1-2 gallons per minute
Total weight 8 pounds

THE RICH SYSTEM

For Detecting and Extinguishing SHIP FIRES

The Rich System uses the steam smothering pipes required by Federal regulation for locating the fire. Provides safety for coal bunkers and cargo holds.

A dependable SYSTEM, through which *any extinguishing medium* (steam, carbon dioxide, or water) can be injected directly on the fire.

Alarm is given before heat is developed.

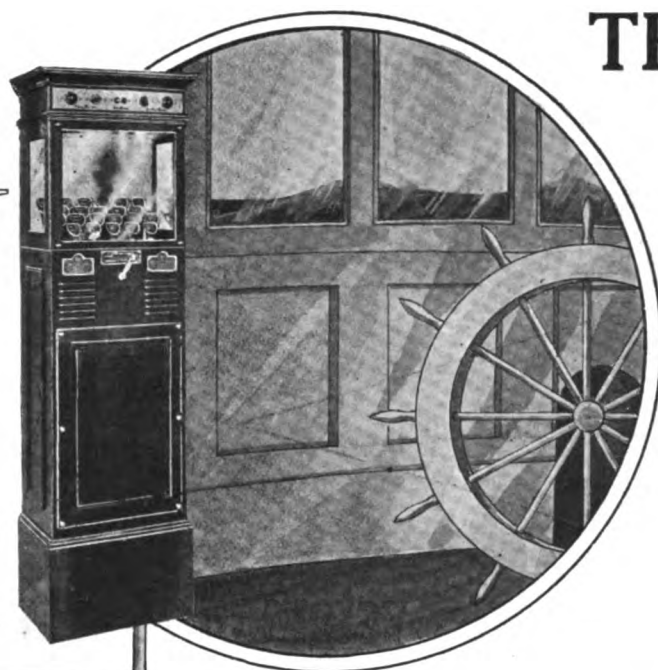
Fully approved by U. S. Steamboat Inspection Service.

Adopted by the U. S. Shipping Board, U. S. Navy, Army Transport Service and many private owners.

The Rich System has proved its value through many years of practical use. Now improved and perfected to conform with the best ship engineering practice.

Makes ship a better risk and entitles owner to lower insurance rates.

SEE THAT SMOKE.....



The Detecting Cabinet

located usually in the wheelhouse has, mounted in its base, electrically driven exhausters which suck the air through the pipes, indicating at once the exact location of smoke from the slightest fire or smoldering in any compartment of the ship.



The Control Cabinet

located on deck or in the engine room is an assembly of valves through which the steam or fire extinguishing gas is delivered to the proper hold. The same pipes used in extinguishing the fire are used for detecting it.

"I know of the installations of this system which have been made on various steamships, and know that it has proved itself."

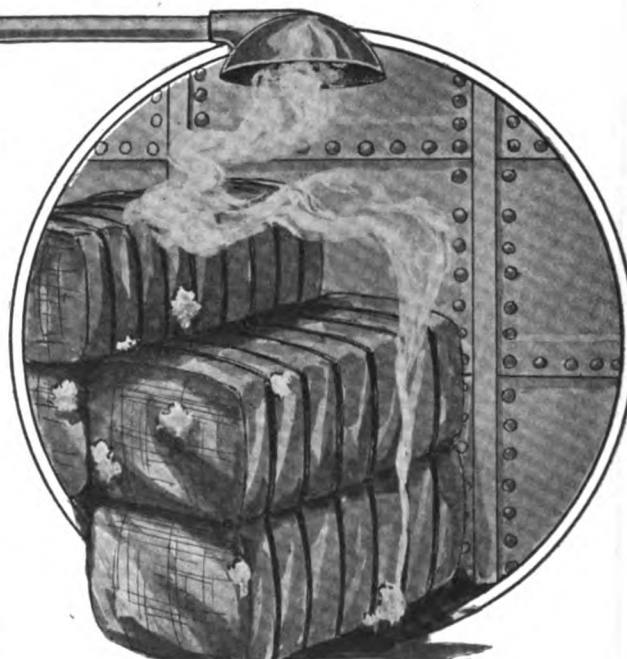
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Consulting Engineer and Naval Architect.
12 BROADWAY, NEW YORK

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FIRE

DETECTION—LOCATION—EXTINCTION *on SHIPS*



ASSOCIATED ENTERPRISES



Automatic Fire Detecting Wire System of Alarm

detects the fire whether from **FLAME** or from unusual heat causing **SPONTANEOUS COMBUSTION**, and designates the exact location of the trouble, at any stated point on the ship. It is of especial value in cargo holds, coal bunkers, etc. It can also be used to detect **OVERHEATING** of the **ENGINE BEARINGS**.

IMMEDIATE ACTION is assured upon the required heat reaching the wire, different degrees of fusing wire being used wherever necessary.

It is a **CLOSED CIRCUIT** system, always in operation, the trouble bell giving immediate notification in case the system becomes inoperative.

PROTECTION from mechanical injury is afforded by a special patented slotted, cold rolled electro-galvanized, steel moulding.

Once installed, this system becomes part of the actual ship construction and will give **DEPENDABLE SERVICE** as long as the ship sails the seas.

The **FIRE DETECTING WIRE CORPORATION**, and the **FOAMITE FIREFOAM COMPANY** are co-operating in **FIRE PREVENTION** and **FIRE EXTINCTION**.

FIREFOAM SMOTHERS FIRE

Both Systems are approved by the United States Steamboat Inspection Service.

NOTHING LIKE THIS COMBINATION KNOWN IN THE WORLD to-day for genuine **FIRE PROTECTION**.

*Let us give you detailed information and quote you on equipping your ships with the **F. D. W.** and the **Firefoam Systems** combined*

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Foamite Firefoam

SMOTHERS FIRE

FIREFOAM is a fire-smothering, fire-extinguishing foam which covers all burning objects like a blanket. It puts out fire quicker than other extinguishing agents and prevents re-ignition. It coats and clings to all surfaces and floats on even the most inflammable liquids. It is effective against every kind of fire—even blazing oil. Unlike water, it does not damage, sink through or flow away. It is absolutely harmless to life and property.

Firefoam has been widely adapted by the largest industries. Oil producers and refiners use Firefoam to protect their vast properties. Many big iron and steel producers have adopted Firefoam as a matter of sound business. It saves and protects life and property. It assists in *lowering insurance rates*.

Firefoam apparatus, endorsed by leading fire and insurance experts, is designed for any fire hazard on shipboard, as well as for docks, terminals and warehouses. Special protective and sprinkler systems are designed for big vessels and large industrial and marine risks. The Firefoam System is the only one approved by the U. S. Steamboat Inspection Service for use in boiler and engine rooms on oil-burning vessels. The small apparatus illustrated on this page is especially effective on dock and warehouse fires.

Every ship builder and ship owner, as well as every water-front property owner should know about Firefoam. A letter to us will bring full particulars.



3-Gallon Firefoam Pail. A most remarkable fire-fighting device. Produces 24 gallons of Firefoam. No skill required. Anybody can dash its contents on a fire.

2½-gallon Firefoam Hand Extinguisher (Underwriters' Approved.) Discharges 20 gallons of Firefoam under high pressure. Ordinary fires, oil fires, gasoline fires, enamel, varnish and chemical fires are all smothered quickly. No reflash—no rekindling. Everything is fireproofed. The fire is out to stay out. It extinguishes a fire of considerable size.

Firefoam 40-gallon Engine. Capacity more than eight times its contents. Highly recommended for protecting dangerous fire risks in buildings, docks and warehouses where hand extinguishers would prove of insufficient capacity. Easily discharged on any burning surface at a distance of 50 ft. or more. Simple to operate. One man can handle it easily.

FOAMITE FIREFOAM COMPANY, Dept. 125, 200 Fifth Ave. New York

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Oldest and Largest Flag Makers in the World

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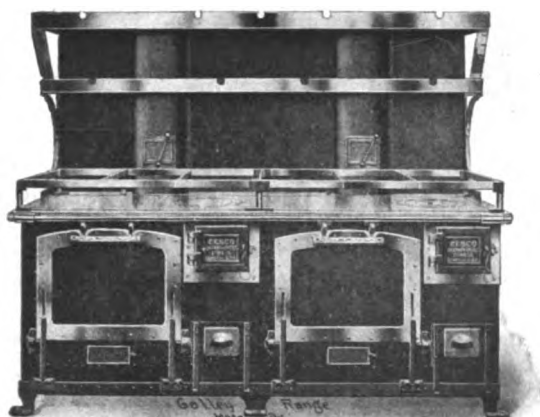
The Lovekin Method of expanding pipes into flanges produces the strongest, most perfect and uniform joints—*economically*.

Adopted by the U.S. Navy Department and most of the large shipbuilding plants.

Lovekin Machines are installed in every industrial Navy Yard of the United States and in Navy Repair Vessels—also in the following plants:—

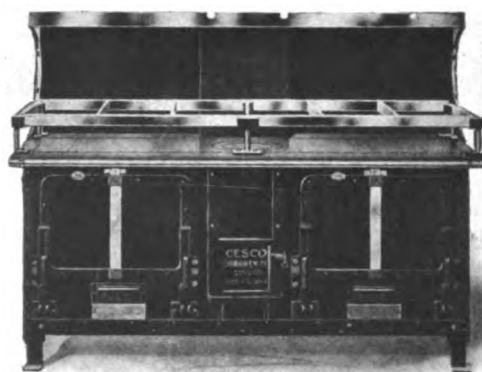
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LOVEKIN PIPE EXPANDING & FLANGING MACHINE COMPANY
423 CHESTNUT STREET, PHILADELPHIA, PA.



Galley Range
Made by
Channon-Emery Stove Co. Quincy, Ill. U.S.A.

2 R 24 Cesco
Two Fire Boxes; Two Ovens.
Built in 7-Foot Sections.



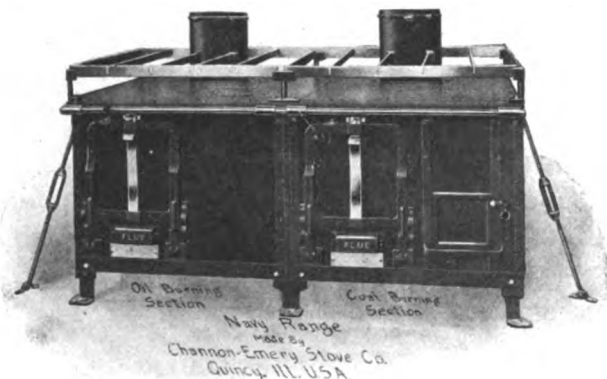
DR 18 and DR 24 Cesco
One Fire Box; Two Ovens.
Built in 5-Foot and 6-Foot Sections.

Channon Emery Stove Co.

QUINCY, ILLINOIS

**Manufacturers of Cesco Guaranteed Galley
Ranges, Both Coal Burning and Oil Burning**

*Send for catalog with
description and prices.*



Standard Navy Range
Built in 3-Foot and 3½-Foot Sections



Standard Navy Range.
Built in 3-Foot and 3½-Foot Sections.

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SHEET PACKING

NOT A HEAT PACKING

FOR
OIL GASOLINE AND WATER

Manufactured to meet the need for an Oil, Grease and Gasoline Proof Packing—a Packing which not only makes Tight Joints, but keeps them tight permanently.

TOUGH — DURABLE — COMPRESSIBLE

CUTS EASILY WITH A KNIFE SO THAT GASKETS
ARE READILY FASHIONED

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of the thickness desired

SOLD BY THE SQUARE YARD IN THE FOLLOWING
APPROXIMATE THICKNESSES, width of sheet 36 inches



No.	Thickness
1 Packing.....	.006"
2 Packing.....	.010"
3 Packing.....	.015" (1/64")
4 Packing.....	.021"
5 Packing.....	.032" (1/32")
6 Packing.....	1/16"
7 Packing.....	1/8"

We specialize in Cutting Vellumoid Gaskets, having a gasket department complete in all details

FIBRE FINISHING COMPANY

73 Tremont Street

BOSTON, MASS.

"GOODALL SEMI-METALLIC" HOSE

Patented (April 20, 1915—August 27, 1918)



**The
Best Hose
for
Steam**



**The Most
Economical
Hose for Any
Service**

Hose to be economical must have these main qualities—ability to stand pressure, flexibility and resistance to abrasive wear. Hose invariably fails from lack of one or more of these qualities. "GOODALL SEMI-METALLIC" Hose was designed with these three essential features in mind—the combining of them is so nearly mechanically perfect that we guarantee "GOODALL SEMI-METALLIC" Hose to more than earn its cost when compared with any other Hose on the market.

PRESSURE—The construction of "GOODALL SEMI-METALLIC" Hose makes it capable of withstanding the highest pressures. The armor gives it throughout its length, the strength of steel.

FLEXIBILITY—"GOODALL SEMI-METALLIC" Hose is more flexible than any Hose made, and cannot be kinked.

WEAR—The continuous steel armor of "GOODALL SEMI-METALLIC" Hose presents an all-metal surface to abrasive wear. Constant dragging around over sharp stones, cinders, etc., has no appreciable effect on it.

Write us the sizes of Hose you use, and the kind of service; we will gladly quote prices.

Hose for Air, Steam, Water, Oils, Suction, etc. Belting, Transmission, Conveyor, Elevator.

Boots, Rubber and Leather Soled. Clothing, Oiled and Rubber Surface.

Packings, Sheet and Rod for Steam, Air, Acids, etc.

SEND INQUIRIES AND ORDERS TO NEAREST BRANCH. STOCKS AT ALL BRANCHES.

GOODALL RUBBER COMPANY, Inc.

Manufacturers

"GOODALL SEMI-METALLIC HOSE"

Mechanical Rubber Goods

New York

Philadelphia

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Baltimore



**RUBBER PRODUCTS for
SHIPYARDS and SHIPS:**

Test Special Rubber Belting.
Cobbs High Pressure Piston Packing.
Firo Superheat Sheet Packing.
Indestructible White Sheet Packing.
Indestructible Water Hose.
Double Diamond Pump Valves.
Indestructible Steam Hose.
Dragon Fire Hose.
Rubber Mats.
Interlocking Rubber Tiling.
Acetylene Welding Hose.

Indestructible~ Pneumatic Tool Hose

HAS GREAT STRENGTH—The ability to withstand high pressure is an index of the quality of Indestructible Pneumatic Tool Hose. You cannot blow it out with a pressure 10 to 15 times the average working pressure—A factor of safety that means continuous, safe operation of your air tools.

WILL NOT KINK—The steady flow of air under all working conditions is guaranteed. With the hose bending around corners or hanging over sharp edges kinking does not occur—the air keeps coming at full pressure.

RELIABILITY—Indestructible Pneumatic Tool Hose can at all times be depended upon to render efficient service. The flexibility and comparatively light weight mean ease in handling at all times.

CONSTRUCTION—The heavy inner tube is an oilproof rubber stock, protected by multiple plies of well frictioned duck. Strength is added by the fabric jacket continuously woven "herringbone" fashion from heavy cotton yarn. The tough, thick rubber cover stands rough handling, making wire winding unnecessary.

Write for sample and complete information.

NEW YORK BELTING & PACKING CO.

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France Packing Company

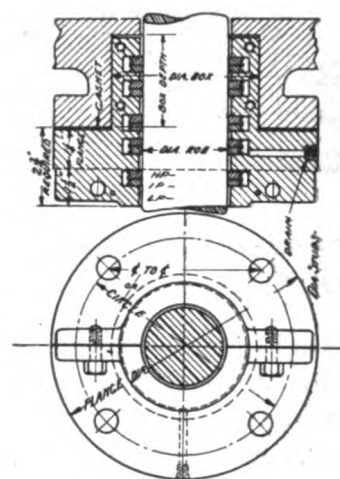
Tacony, Philadelphia, Penna.

MANUFACTURERS OF

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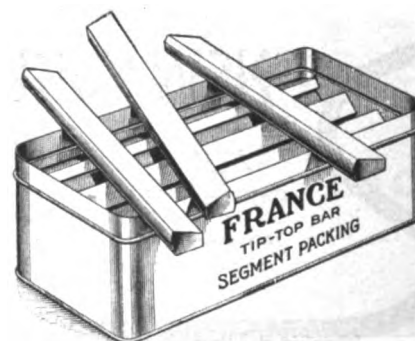
France Floating Split Case Marine Type Packing for piston rods and valve stems. The case is made in halves and can be applied without disconnecting. Case is tapped for drain to carry off water that may adhere to rod, and provision is made for admitting oil to interior of packing for use on high pressure when desired.

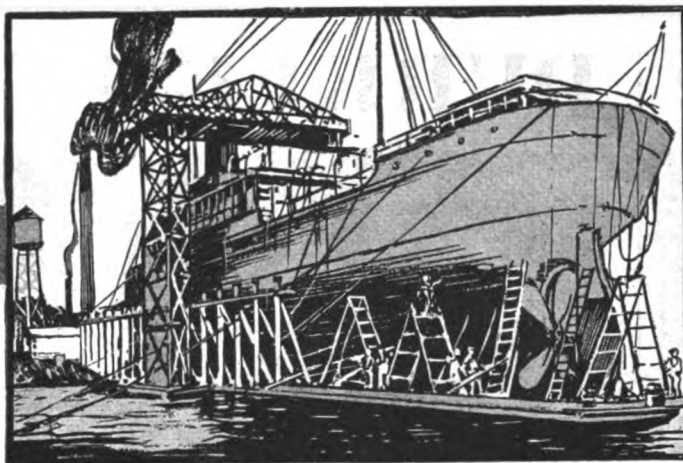


Tip Top Metal Shred Packing for use on small valve rods on engines or pumps, water plungers on pumps, steam winches, etc. It is easy to apply and will not harden in stuffing box. With this type packing you can pack all your small rods without carrying a lot of different sizes in stock.



Tip Top Metal Shred Packing is also compressed into rings to fit the rod and stuffing box when desired. It is also made into bars ranging from $\frac{1}{4}$ " to 1" that can be cut to length desired.





Your Rubber Requirements When Overhauling Ship

demand the same care and discrimination in their purchase as your other mechanical equipment and supplies.

In order to assist you to standardize your rubber purchases the United States Rubber Company offers you the benefit of its long experience in serving the marine field. You will find our conveniently located Branch Stores ready to meet all your rubber requirements.

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Pressure Spiral Packing.*

*Style No. 125. Wizard Braided
Valve Stem Packing.*

*Style No. 231. Peerless Brand
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Hydraulic Spiral Packing.*

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Canvas Pump Packing.*

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*U. S. Co. No. 128. Rubber Pump Valves
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48-10 Air Hose.

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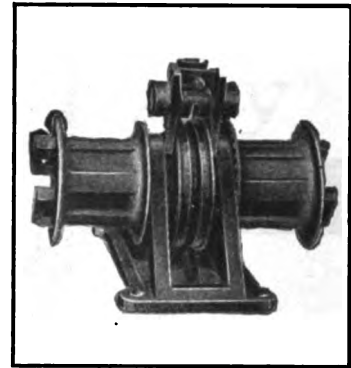
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Manufacturer of Mechanical Rubber Goods*





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THE "ANDRADE" WINDLASS

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FOR FILLING THE NEEDS OF SHIP BUILDERS AND
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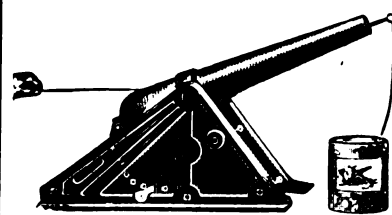
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We can deliver anything in
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Complete joiner equipment for
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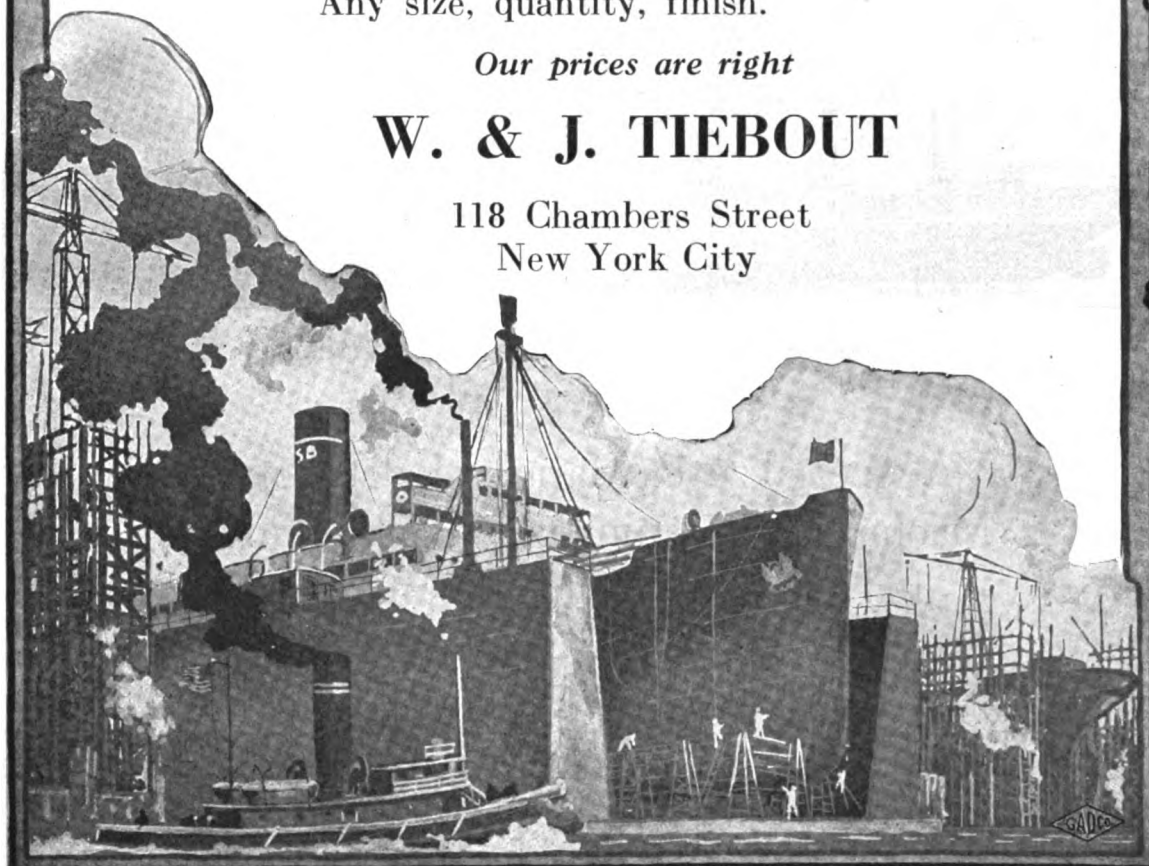
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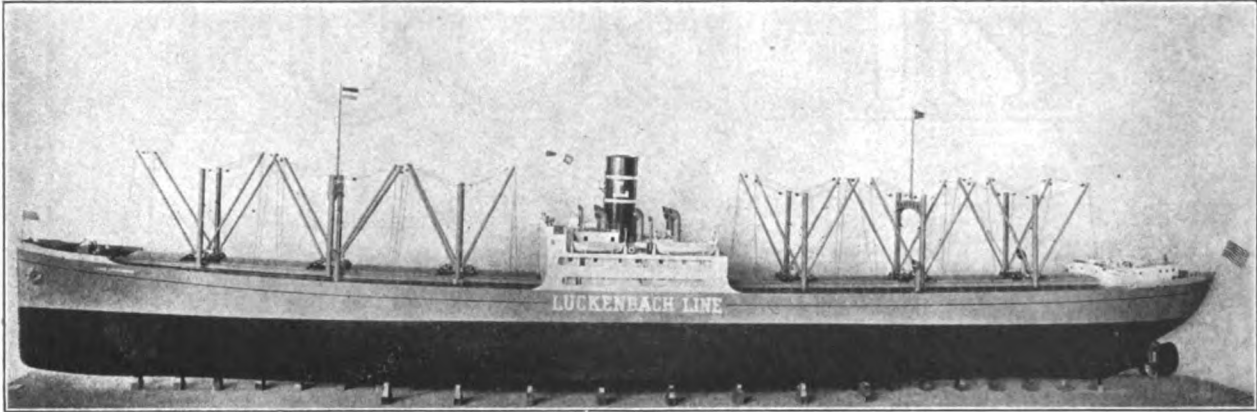
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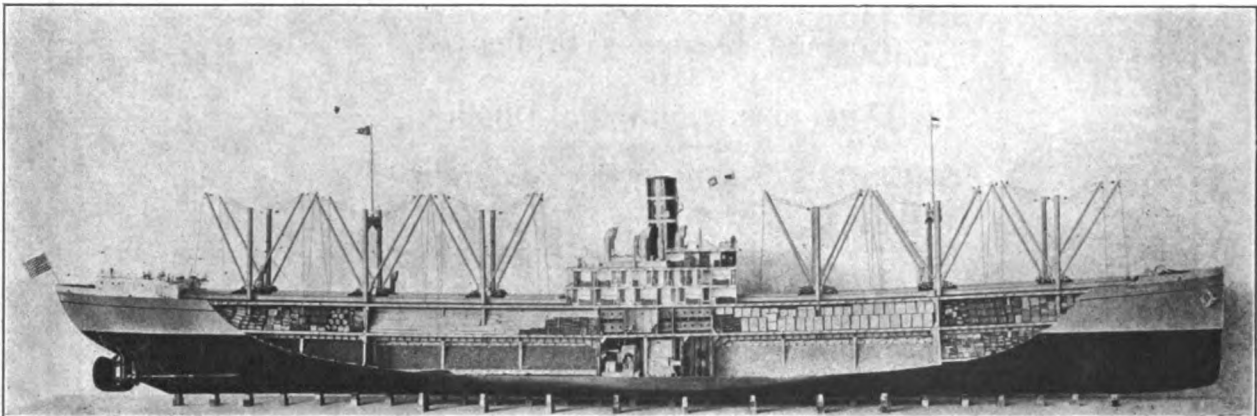
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and Dies and Light Manufacturing

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Continued from
Preceding Page

TEXACO DIESEL ENGINE FUEL

TEXACO BUNKER OIL "A"

TEXACO BUNKER OIL "B"

TEXACO BUNKER OIL "C"

TEXACO FUEL OIL STATIONS

PROVIDENCE, R. I.

Depth of water, 25 ft. Located on west side of Providence River, Providence Harbor. Dock lies between Providence Gas Works and the Providence Municipal Dock.

NEW YORK, N. Y.

Depth of water, 22 ft. Located on southeast side of Newark Bay, about one mile from Bergen Point Lighthouse, and about the same distance from the entrance of Newark Bay from the Kill von Kull. The dock is the first wharf located on the northeast side of Newark Bay as ships enter from the Kills. Note—Ships drawing more than 22 ft. cannot pass through the Kill von Kull. Deep draft boats will be fueled by lighters in the harbor.

PHILADELPHIA, PA.

Depth of water, 25 ft. Located on west side of Delaware River at Claymont, Del., about 1½ miles below the Marcus Hook Quarantine Station, the first wharf below the General's Wharf.

BALTIMORE, MD.

Depth of water, 28 ft. Located on northern side of Curtis Bay at Wagner's Point, and is the first wharf located on northern side of Curtis, about one-half mile from the entrance to Curtis Bay from the Patapsco River.

NORFOLK TERMINAL

Depth of water, 25 ft. Located on the east bank of the south branch of the Elizabeth River, about two and one-half miles above the Navy Yard, or about one mile above the Belt Line Bridge and just on the lower side of the Virginian Railroad Bridge.

CHARLESTON, S. C.

Depth of water, 30 ft. Located on west side of Cooper River, about three miles above the Navy Yard.

SAVANNAH TERMINAL

Depth of water, 26 ft. Located on the south side of the Savannah River, about one mile above Fort Oglethorpe, and about one and one-half miles below the corporate limits of the city of Savannah.

JACKSONVILLE TERMINAL

Depth of water 23 ft. Located on the west side of the St. John's River, about five miles north of and below the city of Jacksonville, and about one and one-half miles below the Municipal Docks.

KEY WEST, FLA.

Depth of water, 22 ft. Located between Mallory and P. & O. Steamship Company Docks on property of the Porter Dock Company.

TAMPA, FLA.

Depth of water, 24 ft. Located on the city slips at Tampa.

PENSACOLA, FLA.

Depth of water, 28 ft. Located at the foot of Clubbs Street, adjoining the Bruce Dry Dock property on the west.

MOBILE, ALA.

Depth of water, 27 ft. Located on south side of Mobile River at Choctaw Point, adjoining G. M. & N. R. R. Docks.

GULFPORT, MISS.

Depth of water, 21 ft. Located on Anchro Basin, adjoining what is known as the "East Pier" of the Gulf and Ship Island Railroad.

NEW ORLEANS, LA.

Depth of water, 30 ft. Located at Amesville, La., on west side of Mississippi River, above the Napoleon Avenue Ferry Landing.

PORT ARTHUR REFINERY, PORT ARTHUR, TEX.

Depth of water, 26 ft. Located on the Port Arthur turning basin connected with the Ship Canal. The principal seaboard refinery of The Texas Company is located at Port Arthur. Deliveries can be made of all grades of fuel oil in practically unlimited quantities. Delivery to Sabine accomplished by lighter.

GALVESTON, TEX.

Depth of water, 29 ft. Located on Galveston Harbor, same wharf that the Southern Pacific Line Steamers use.

COLON, C. Z.

Oil docks located on French Canal, at Cristobal, C. Z.

If required, delivery will be made by lighter to ship's side at practically all of above ports on short notice

We Recommend the following Marine Oils for the Lubrication of Ships equipped with Reciprocating Engines, Turbines and Diesel Motors:

TEXACO MARINE ENGINE OIL

This is a compound oil made to saponify with water, for lubrication of reciprocating engines and auxiliaries where oiling is done by hand or through wick feed or drop oilers; also thrust bearings.

This oil is not suitable, nor intended for other purposes.

TEXACO MARINE CYLINDER OIL

A heavy mineral steam cylinder oil possessing fine lubricating qualities, for use on piston and valve rods.

TEXACO MARINE TURBINE OIL, M.

TEXACO MARINE TURBINE OIL, H.

Texaco Turbine Oils, Medium and Heavy, are especially manufactured for the lubrication of Marine turbines with reduction gears. Both oils pass the emulsion test of the U. S. Navy, and also have an excellent cold test and work very satisfactorily in gravity as well as force feed systems.

TEXACO MARINE DYNAMO OIL

A medium-bodied oil recommended for lubrication of small turbines and small enclosed engines of the crank case type.

TEXACO URSA OIL

A heavy-bodied oil, especially manufactured and recommended for the lubrication of cylinders, bearings and air compressors of Diesel and semi-Diesel engines.

TEXACO REFRIGERATING OIL, C

TEXACO REFRIGERATING OIL, A

Texaco Refrigerating Oil C is a medium-bodied oil with a very low cold test, and is recommended for compressor and expander cylinders of ammonia machines.

Texaco Refrigerating Oil A is a light oil with very low cold test, and is recommended for CO² Ice Machines.

TEXACO TUNNEL BEARING GREASE

This grease is recommended for stern tube lubrication where a grease is used.

TEXACO GREASES NO. 3 AND NO. 5

These are very high grade, general lubricating greases. No. 3 is a medium-bodied grease. No. 5 is a very hard grease.

TEXACO CRATER COMPOUND

For gears, derrick winches, etc. This is a heavy adhesive lubricant, which remains on the gear teeth and resists pressure and provides continuous lubrication. This product stands up under the most severe service.

TEXACO LAUNCHING GREASES

These launching greases are two in number—a base grease, which is a substitute for tallow, lard oil and stearine and after a launching may be scraped from the ways and used again—and a launching grease which is used in connection with the base grease, and is a high grade product manufactured to withstand severe pressures.

* * * * *

We also manufacture the following Petroleum Products for burning in lamps aboard ship:

TEXACO LAMP WAX

TEXACO BURNING OILS

TEXACO SIGNAL OILS

*See Page
Following*

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All genuine Texaco Marine Lubricants may be readily identified by the Texaco Trade-mark which appears prominently on all barrels or other packages.

Texaco Marine Lubricants have been used for a number of years and are at present being used by the U. S. Navy.



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OIL BURNING EQUIPMENT

COMPLETE OIL BURNING SYSTEMS DESIGNED AND INSTALLED



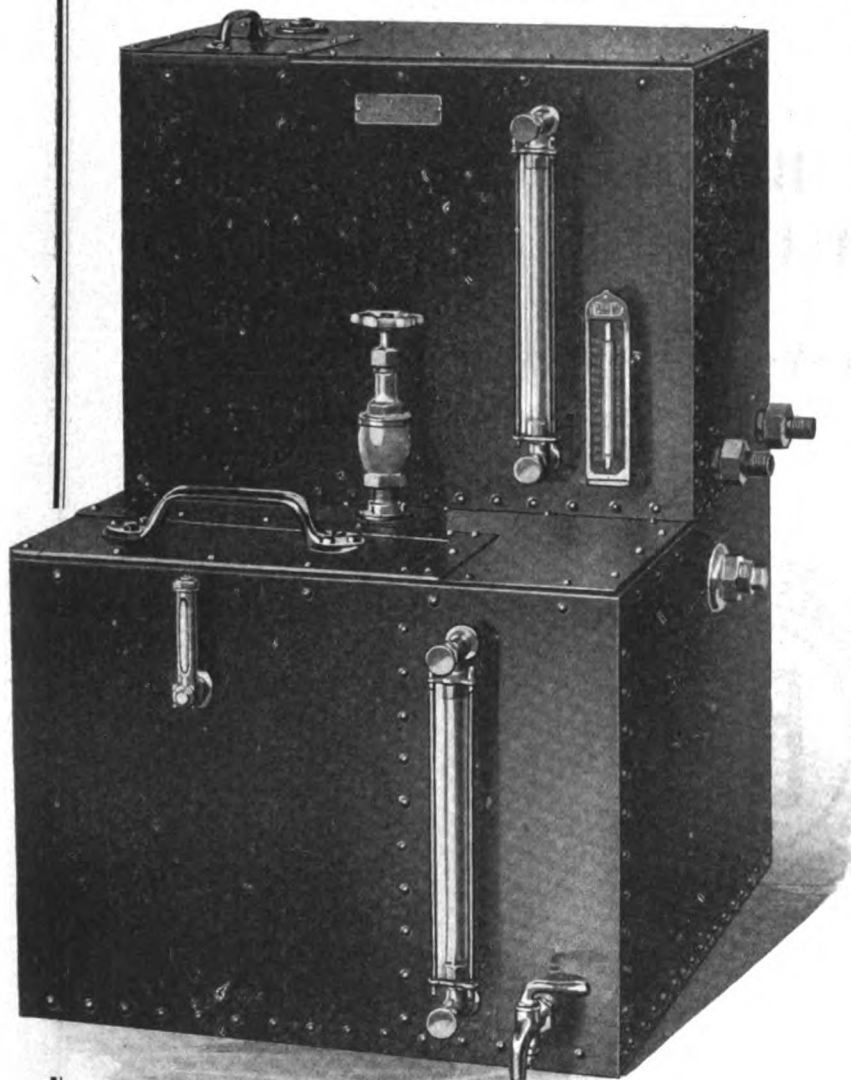
Peabody-Fisher Wide Range Mechanical Atomizers
have shown a range in capacity by actual test of
250 lbs. to 1820 lbs. per hour in a single burner
without change of tip.

OIL FILTERS FOR MARINE SERVICE

During the war part of the standard engine room equipment of practically all of the ships built for the Emergency Fleet Corporation was a Peterson Marine Type Oil Filter

Peterson Marine Type Oil Filter

Oil does not wear out; it merely gets dirty; remove the dirt and the oil can be used again. The Peterson Marine Type Oil Filter is guaranteed to purify used oil so that the lubricating properties of the filtered oil are equal to new oil.



Peterson Marine Type Oil Filters are used because

They save oil;

They save cargo space by reducing the amount of oil that must be carried;

They make a ship practically independent of the varying oil supply of foreign ports.

If they were a good investment during the war, surely they are a necessity in peace.

Designed for marine service the Peterson Oil Filter can be easily cleaned without stopping its operation; there are no moving parts to get out of order or to replace.



*Send for Bulletin No. C5A
describing R-P Marine Type Oil
Filters and giving other interesting
and valuable information on the
Science of Oil Purification.*

No. 70 Peterson Marine Type Oil Filter
Capacity 192 gallons per 24 hours

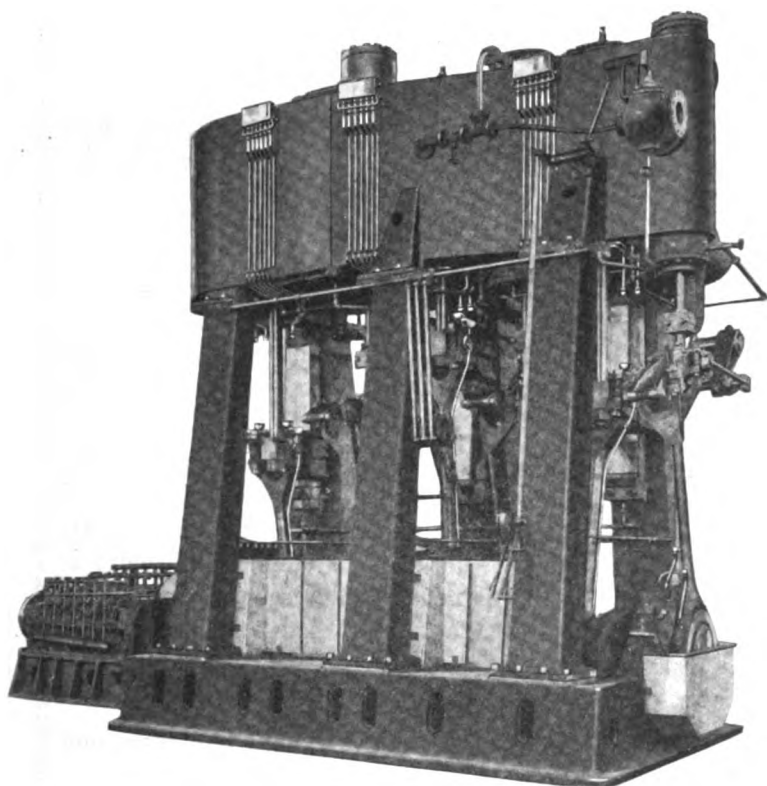


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WORKS—120 RESERVOIR AVE., MILWAUKEE, WIS.





Large Marine Engine Equipped with R-P Oiling Devices

Standardized Oiling Devices For Marine Engines

R-P Standardized Oiling Devices did their bit toward winning the war. Hundreds of Marine Engines such as is illustrated were equipped with R-P

**Multifeed Wick Oiler Boxes
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Prompt delivery can now be made on the complete lubricating equipment for 450 H.P., 700 H.P., 850 H.P., 1400 H.P. and 2800 H.P. Marine Engines.

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Full information, descriptions, cuts and prices on R-P Standardized Oiling Devices will be cheerfully given on request.

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LUBRICATION ENGINEERS
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MILWAUKEE, WISCONSIN



Wrist Pin Oil Cup

The De Laval Oil Purifier

instantaneously removes dirt, water and other impurities from lubricating oil

The De Laval Method of purifying lubricating oils in marine power plants is a simple and efficient means of eliminating water, carbon and other impurities from the oil. By its use the original lubricating qualities of the oil are restored and indefinitely maintained.

The operation of the De Laval Oil Purifier is simple and positive, and is not affected by the motion of the ship. The entire process is instantaneous and continuous. The dirty oil is pumped into a gravity tank, from the bottom of which it flows into the Purifier. The pure oil is discharged from one spot of the Purifier and flows back into the lubricating system. The water is discharged from another spout into a waste pipe. All of the lighter solids present in the oil are sludged out with the water, and the heavier solids remain in the bowl, which can be quickly and easily cleaned at necessary intervals. This self-sludging feature of the De Laval Oil Purifier insures long, continuous operation without cleaning.

The Purifier occupies less than two square feet of floor space and requires less than one horse-power to drive.

De Laval Oil Purifiers are now used on all kinds of ships from United States destroyers to motor-driven cargo boats. They are being installed on old ships and on ships now building. Wherever used they are reducing friction and wear, cutting down oil consumption and lengthening the life of machinery.

De Laval Oil Purifiers are also adapted for removing water and other foreign matter from fuel oil. All such foreign matter is quickly and effectually removed by the De Laval Method and the annoyance, delay and danger from this source of fuel trouble are eliminated.

The De Laval Oil Purifier is furnished in three sizes, and each size may be had for either electric, belt, or direct steam turbine drive.

De Laval engineers are prepared to render valuable service in the reclamation or purification of lubricating or fuel oil. You are invited to call on them for additional information and advice regarding your particular problem.

*Write to nearest office for Crank
Case Oil Bulletin No. 102, and
also for Marine Bulletin No. 103*

The De Laval Separator Company

165 Broadway
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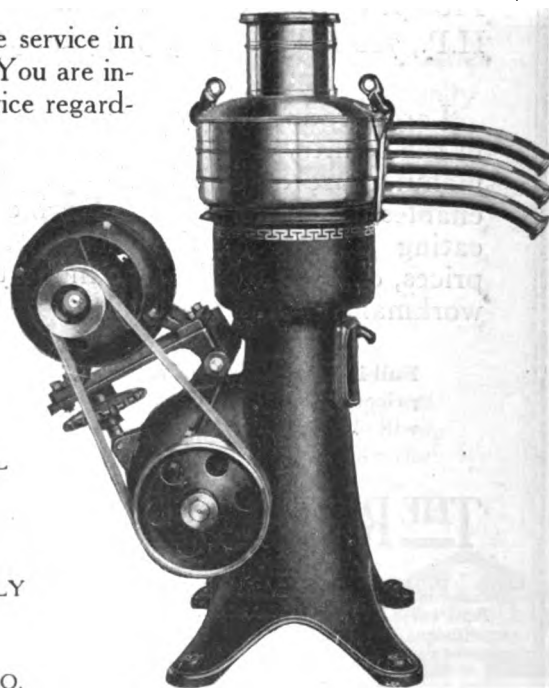
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Electric Driven



Cosmolac

Here is the one varnish that defies the elements. It is weatherproof. Wind or waves will not peel or blister surfaces covered with Cosmolac. Hot or cold water, steam or changes in temperature have no effect on Cosmolac. It resists all kinds of weather. It is equally good for interior or exterior use. It is crystal clear, transparent, and almost colorless. It dries as hard as chilled steel, but always retains its resiliency. It is the best varnish for ship and boat builders and for launch and yacht owners.

The House of Masury makes a paint or a varnish for every purpose. The leading group is known the world over as the "Big Six," and consists of Cosmolac, the transparent, flexible varnish; Perfection Flat White and Colors for walls and ceilings; China Gloss White Enamel, an enamel that is really white; Masury Liquid House Paints for outdoor use; Masury Pure Colors in Oil, used by first-class painters in mixing paints, and Masury Superfine Colors for motor cars, carriages, and coaches.



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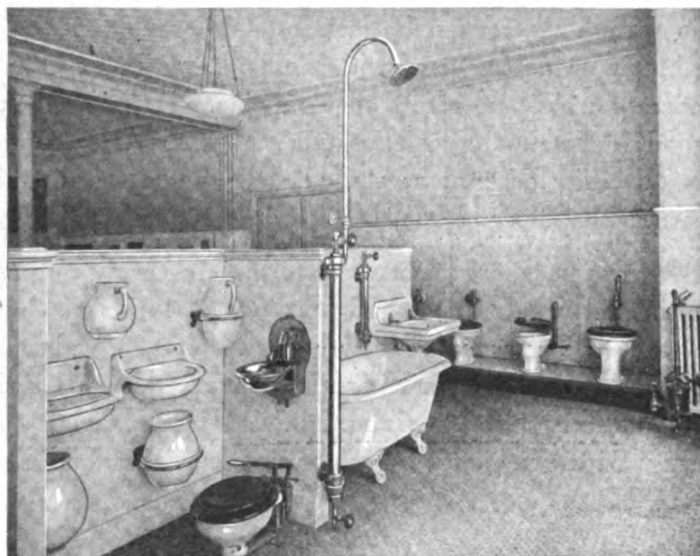
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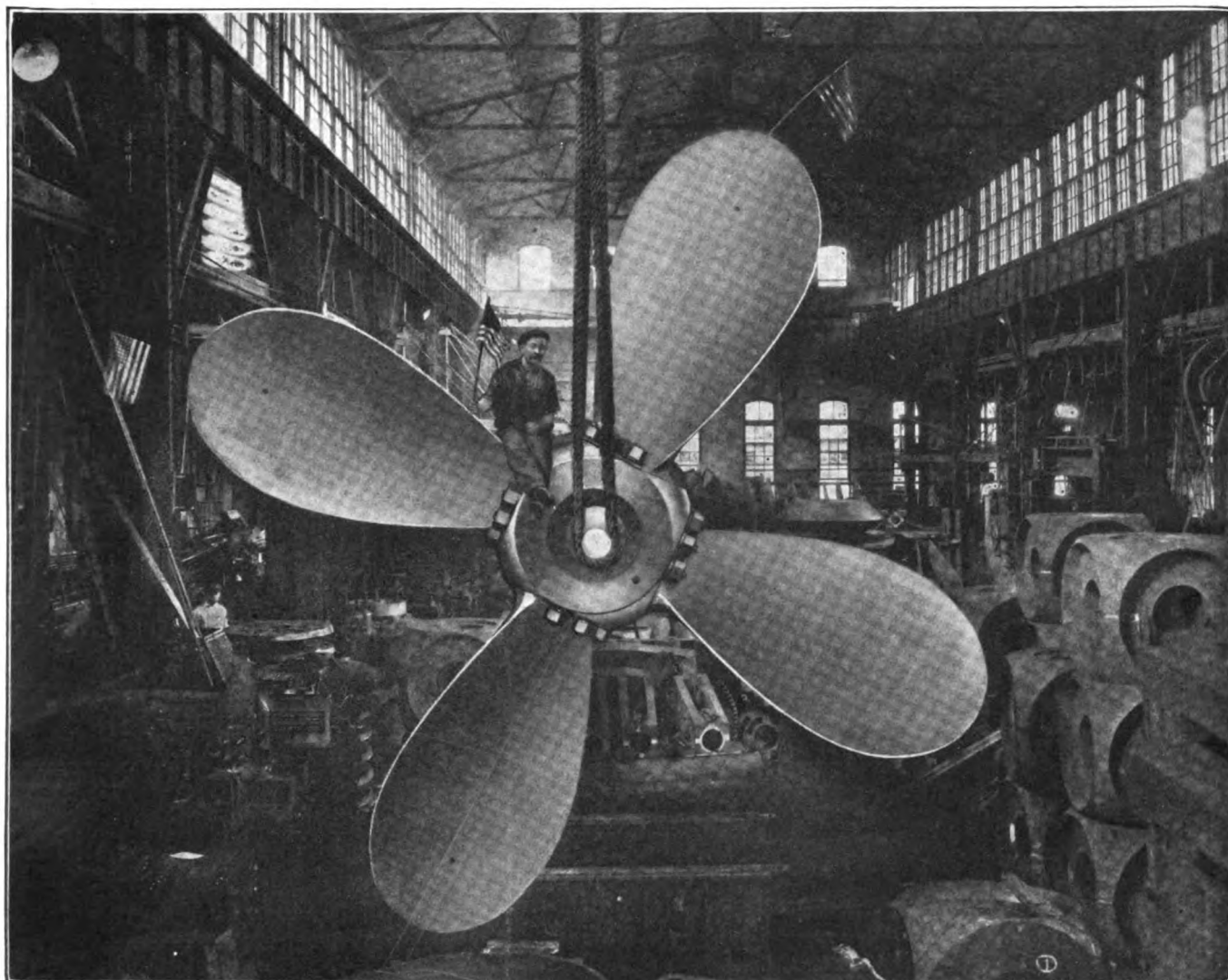
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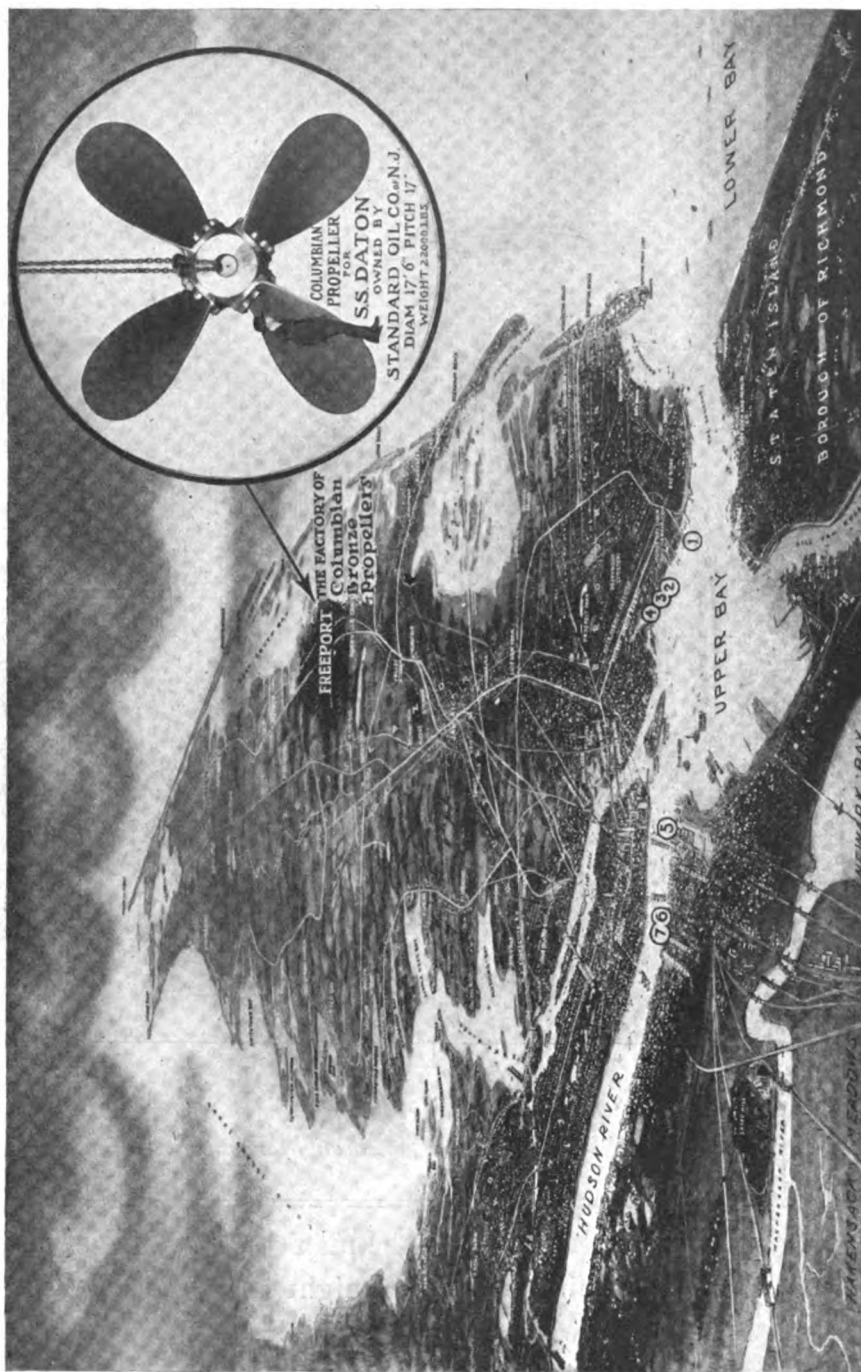
*Showing first propeller (on an order of 40) delivered to HOG ISLAND,
for use on the class "B" ships building there.
Diameter 18 ft. 6 in. Weight 34,000 lbs. Manufactured by American Manganese Bronze Co.*

We could dwell for quite a lengthy period upon the manifold advantages of Manganese Bronze Propellers, but anything which we might say could not add in force to the world-proven fact, "That where Efficiency, Durability, Economy of Operation and Safety are desired," Manganese Bronze is used for propeller wheels by those who know.

AMERICAN MANGANESE BRONZE COMPANY

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- 3 Tebo Yacht Basin.
- 4 Robins Dry Dock & Repair Co.
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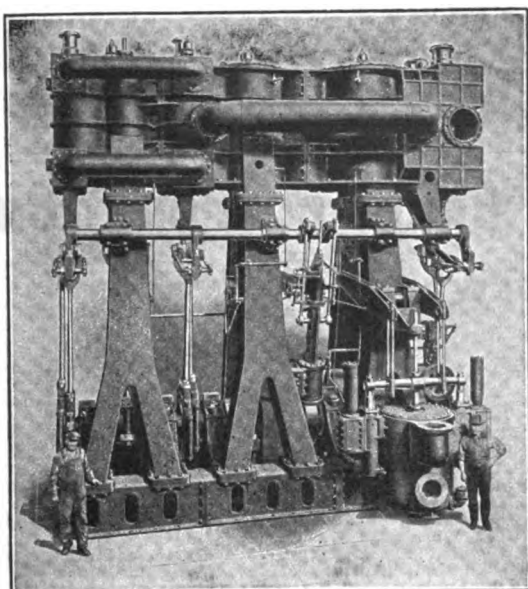
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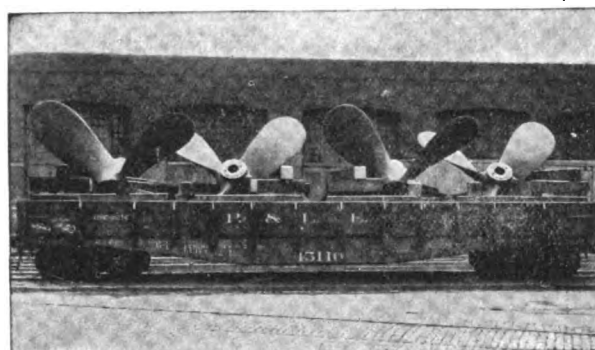


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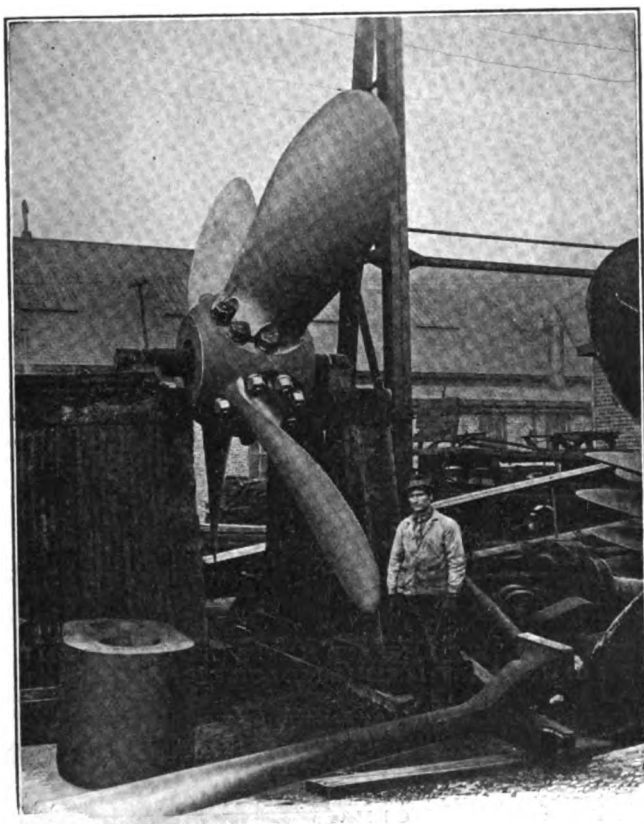
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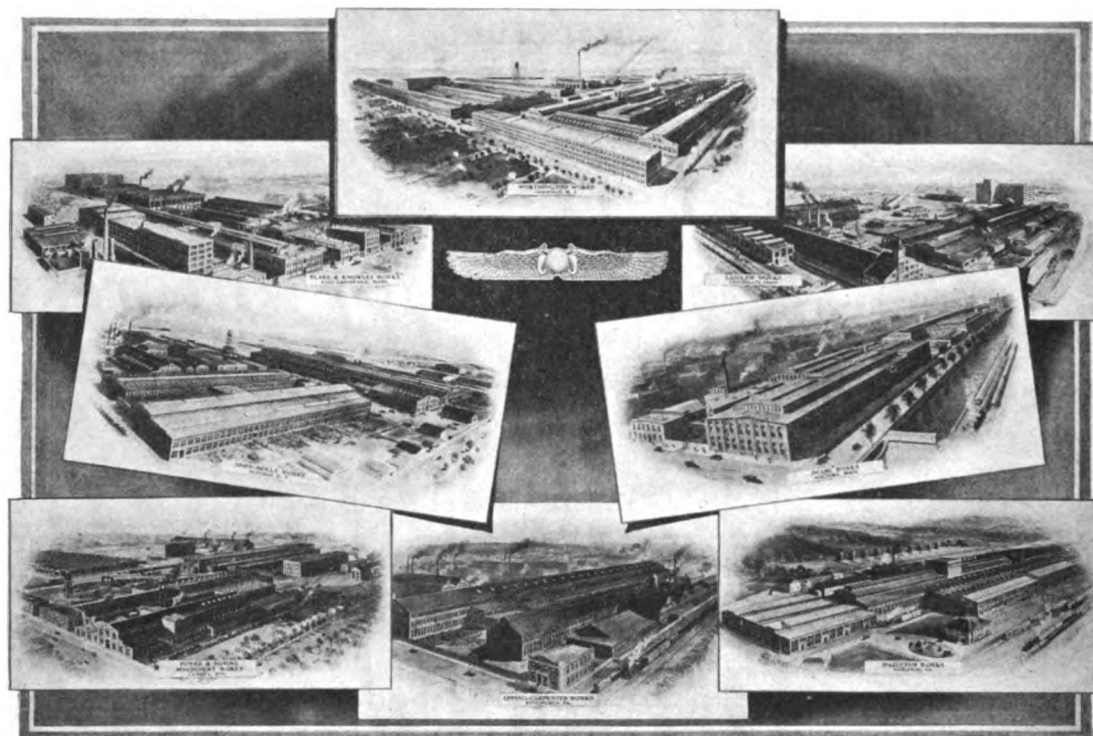
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WORTHINGTON PUMP AND MACHINERY CORPORATION

ILLUSTRATED on this and the following pages will be found a few of the many lines of marine equipment made by Worthington. Worthington pumps, condensers, and equipment are considered as standard by the U. S. Government, having been installed on battleships, cruisers, destroyers, tugs, etc. Practically all the merchant vessels of the U. S. Shipping Board are Worthington equipped. In fact, Worthington marine installations are too numerous to mention in the limited space. For the past 80 years

Worthington apparatus has been rendering reliable and efficient service. Worthington oil engines and air compressors have long been recognized as supreme in their field and with the new line of Marine Diesel Engines we are in a position to offer you full equipment for the motorship, from the big main engines and auxiliaries to the smallest oil pump. Our engineering department is yours to call upon and bulletins will gladly be sent regarding any equipment.

The Worthington Duplex Packed Piston Pump

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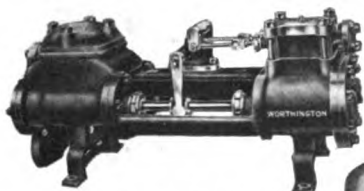


Fig. W-3. Size, 6x4x6.
Cap and Valve Plate Pattern.

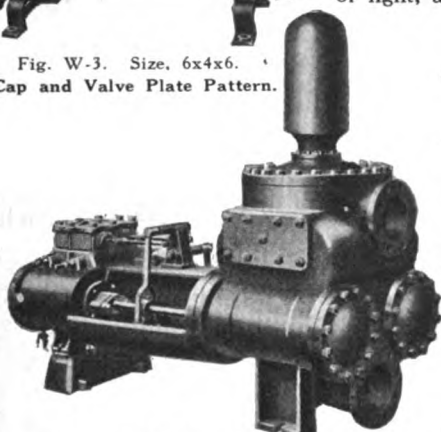


Fig. W-5. Size, 12x8 1/2 x 12.
Turret Top Pattern.

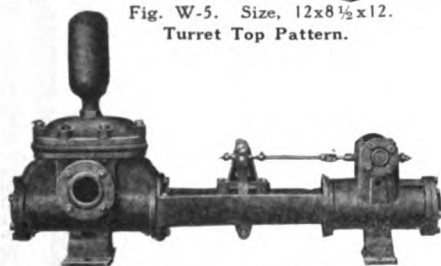


Fig. B-2159. Size, 6x6x12.
Cap and Valve Plate Type.

**Maximum Working Pressure: Steam End, 250 lbs.;
Water End, See Note.**

Size, Inches			Normal Operating Cap. per Minute	Diameter Pipes, Inches				Floor Space, Inches
Dia. Steam Cylinder	Dia. Water Cylinder	Stroke		Steam	Exhaust	Suction	Discharge	
3 1/2	3 1/2	4	17	1 1/2	1 1/2	1 1/2	1 1/2	28x10
4 1/2	4 1/2	6	35	2 1/2	2 1/2	2 1/2	2 1/2	46x14
5 1/2	5 1/2	8	54	3 1/2	3 1/2	3 1/2	3 1/2	46x14
6	6	10	75	4 1/2	4 1/2	4 1/2	4 1/2	66x15
7 1/2	7 1/2	12	100	5 1/2	5 1/2	5 1/2	5 1/2	54x16
8	8	14	127	6 1/2	6 1/2	6 1/2	6 1/2	66x16
10	10	16	157	7 1/2	7 1/2	7 1/2	7 1/2	74x22
10	10	18	177	8 1/2	8 1/2	8 1/2	8 1/2	80x19
10	10	20	197	9 1/2	9 1/2	9 1/2	9 1/2	74x25
12	12	22	227	10 1/2	10 1/2	10 1/2	10 1/2	90x25
12	12	24	257	11 1/2	11 1/2	11 1/2	11 1/2	76x25
12	12	26	287	12 1/2	12 1/2	12 1/2	12 1/2	93x25
14	14	28	317	13 1/2	13 1/2	13 1/2	13 1/2	90x29
14	14	30	347	14 1/2	14 1/2	14 1/2	14 1/2	101x31
16	16	32	377	15 1/2	15 1/2	15 1/2	15 1/2	101x31
18	18	34	407	16 1/2	16 1/2	16 1/2	16 1/2	120x40
18	18	36	437	17 1/2	17 1/2	17 1/2	17 1/2	120x40

Maximum Working Pressure: Steam Ends, 150 lbs.; Water Ends, up to 10x6x10, 200 lbs.; Larger Size Water Ends, 150 lbs.

Size, Inches			Normal Operating Capacity per Minute	Diameter Pipes, Inches				Floor Space, Inches
Dia. Steam Cylinders	Dia. Water Cylinders	Stroke		Steam	Exhaust	Suction	Discharge	
3	2	3	.041	110	28	9	83	24x 9
3 1/2	2 1/4	4	.069	100	33	14	130	28x 9
4 1/2	2 3/4	4	.103	100	33	21	195	33x13
5 1/2	3 1/2	5	.208	9	38	37	340	38x16
6	4	6	.326	80	40	52	480	44x17
7 1/2	5	6	.51	80	40	82	760	45x22
7 1/2	4 1/2	10	.69	70	58	97	900	59x22
9	5 1/4	10	.94	70	58	131	1210	61x23
10	6	10	1.22	70	58	171	1580	62x26
10	7	10	1.67	70	58	234	2170	60x26
12	7	12	2.00	60	60	240	2230	76x31
14	7	12	2.00	60	60	240	2230	78x33
12	8 1/2	12	2.95	60	60	354	3275	76x31
14	8 1/2	12	2.95	60	60	354	3275	78x33
16	8 1/2	12	2.95	60	60	354	3275	79x40
14	10 1/4	12	4.29	60	60	515	4750	82x37
16	10 1/4	12	4.29	60	60	515	4780	82x40

Single Horizontal Tank or Light Service Pumps. Piston Pattern.

Blake-Knowles Simplex Style "A" Type

FOR pumping water or other liquids to limited heights, these pumps combine large pumping capacity with small expenditure of steam; the steam cylinders, in proportion to the pump cylinders, being smaller in diameter than with the regular pressure pumps.

Water cylinders 12 inches in diameter and smaller are of the "Cap and valve plate" pattern, like Fig. B-2159; the larger sizes are of the "close-clearance" type, like Fig. B-2125-A. Water cylinders 8 inches in diameter and smaller are good for water pressure corresponding to 230 feet (100 lbs.) head, or less; larger sizes, for pressures corresponding to 175 feet (75 lbs.) head, or less.

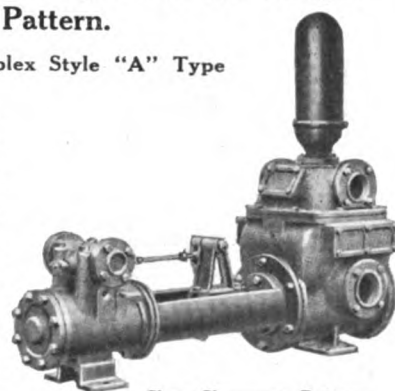


Fig. B-2125A. Size, 14x14x18.
Close-Clearance Pattern.

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WORTHINGTON PUMP AND MACHINERY CORPORATION

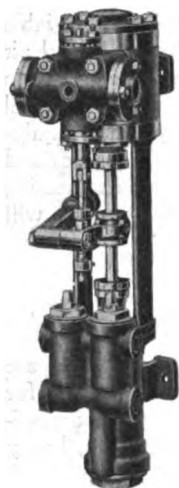


Fig. B-2128.
Size, 4x2½x4.
Valve Pot Type.
Small Sizes.

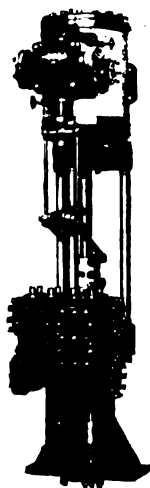


Fig. B-2784.
Monochest Type.

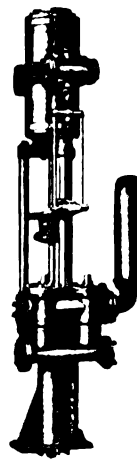


Fig. B-2852.
Size, 10x6x24.
Valve Pot Type.



Fig. B-2672.
Size, 14x10x24.
Valve Pot Type.



Fig. B-2649.
Size, 4½x5x6.
Cap and Valve Plate
Type.

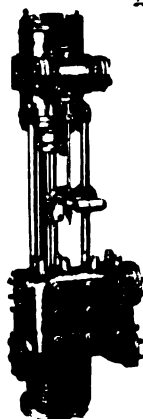


Fig. B-2873.
Size, 7x8x12.
Monochest Type.

Vertical Simplex Piston Pumps.

Blake-Knowles Simplex Style "A" Type. For Boiler Feed or Pressure Service—Maximum Working Pressure: Steam End, 300 lbs.; Water End, 300 lbs.—Valve Pot Type.

Figure Number	Size, Inches		Stroke	Gallons per Stroke	Normal Operating Capacity per Minute			H. P. Boiler (at 35 Lbs. Evap.) Pump will Feed (at 65% Normal Speed)	Diameter Pipes, Inches				Space Occupied Without Air Chamber, Ins.		
	Diameter Steam Cyl.	Diameter Water Cyl.			No. Single Strokes	Feet Per-ton Speed	Gallons		Steam	Exhaust	Suction	Discharge	Width	Depth	Height
2128	3½	1¾	4	.04	100	35	4	38	¾	1½	¾	¾	9	12	32
2128	3½	2¼	4	.07	100	35	7	65	¾	1½	¾	¾	9	12	32
2128	4	2½	4	.09	100	35	9	83	¾	1½	¾	¾	9	12	32
2128	4½	2¾	6	.15	80	40	12	110	¾	1½	1	1	10	15	41
2128	6½	3½	8	.33	70	47	23	215	¾	1½	2	1	13	19	51
2128	7½	4	10	.54	70	58	38	350	1	1½	2½	2	15	21	63
2852	10	6	12	1.47	60	60	88	820	1½	1½	3	3	22	25	78
2852	10	6	24	2.94	50	100	147	1360	1½	2	3½	3	22	29	115
2672	10	7	24	4.00	50	100	200	1850	1½	2	4½	4	23	29	115
2672	12	8	24	5.22	50	100	261	2400	1½	2	4½	4	28	34	128
2672	14	9	24	6.61	50	100	331	3050	2	2½	5	4½	30	35	130
2672	14	10	24	8.16	50	100	408	3800	2	2½	6	5	33	35	131
2672	18½	13½	24	14.85	50	100	743	6900	2½	3	8	7	44	41	149
2784	8	5	12	1.02	60	60	61	570	1	1½	3	2½	16	21	72
2784	10	6	12	1.47	60	60	88	820	1	1½	3½	3	16	27	72
2784	10	7	12	2.00	60	60	120	1115	1½	1½	4	3½	17	25	78
2784	12	8	12	2.61	60	60	157	1450	1½	2	4½	4	20	34	85
2784	12	8	18	3.91	60	90	235	2200	1½	2	4½	4	23	30	105

For Light Pressure or Tank Service—Maximum Working Pressure: Steam End, 300 lbs.; Water End, as per List Below.

Figure Number	Size, Inches			Maximum Water Pressure, Lbs. S. I. In.	Gallons per Stroke	Normal Operating Capacity per Minute			Diameter Pipes, Inches				Space Occupied, Without Air Chamber, Inches		
	Dia. Steam Cylinder	Dia. Water Cylinder	Stroke			No. Single Strokes	Feet Piston Speed	Gallons	Steam	Exhaust	Suction	Discharge	Width	Depth	Height
2649	3½	4	4	75	.22	100	33	22	¾	1½	2	1½	13	16	38
2649	4½	5	6	75	.51	80	40	41	¾	2	2½	2	23	17	41
2649	4½	6	6	75	.73	80	40	58	¾	2	2½	2	23	21	42
2649	6½	7	8	75	1.33	70	47	93	¾	3	3½	3	26	23	61
2802	6	7	12	50	2.00	60	60	120	¾	1	4	3½	24	26	72
2873	7	8	12	50	2.61	60	60	157	1	1½	4½	4	30	26	75
2873	8	10	12	35	4.08	60	60	245	1	1½	6	5	36	32	75
2873	10	10	12	35	4.08	60	60	245	1½	1½	6	5	36	32	77
2873	10	12	12	35	5.87	60	60	352	1½	1½	7	6	37	33	78
2873	12	14	12	35	8.00	60	60	480	1½	2	8	7	41	38	81

THE accompanying illustrations show the compact, rigid and light weight construction of Blake-Knowles Simplex Style "A" Type pumps. Some advantages of these pumps over those of the duplex pattern are that they occupy less space, have a less number of wearing parts, make full stroke at all times, will not short stroke under any conditions of running, have less steam consumption, are much better for handling hot water, gases, mixtures of liquids and gases, or for any service where water cylinder may not entirely fill with liquid at each stroke.

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WORTHINGTON PUMP AND MACHINERY CORPORATION

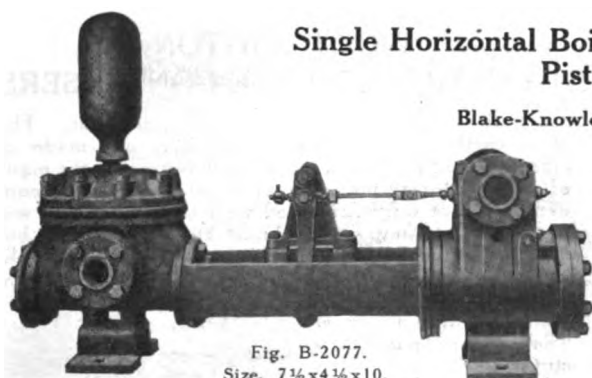


Fig. B-2077.
Size, 7½ x 4½ x 10.

Single Horizontal Boiler Feed or Pressure Pumps. Piston Pattern.

Blake-Knowles Simplex Style "A."

Maximum Working Pressure: Steam End, 250 lbs.;
Water End, 250 lbs.

Size, Inches			Gallons per Stroke	Normal Operating Capacity per Minute			H. P. Boiler (at 35 Lb. Evap.) Pump will Feed (at 65% Normal Speed)	Diameter Pipes, Inches				Floor Space, Inches
Dia. Steam Cylinder	Dia. Water Cylinder	Stroke		No. Single Strokes	Feet Piston Speed	Gallons		Steam	Exhaust	Suction	Discharge	
3½	2¼	4	.069	100	33	7	64	¾	¾	1	¾	29x8
4½	2¾	6	.15	80	40	12	110	¾	¾	1	¾	39x11
5½	3¼	7	.25	75	44	19	175	¾	¾	1½	1½	44x11
6½	4¼	8	.46	70	47	32	300	¾	1	2½	2	50x13
7½	4½	10	.69	70	58	48	450	1	1½	3	2½	59x15
8	5	12	1.02	60	60	61	570	1	1½	3½	3	67x15
10	6	12	1.47	60	60	88	820	1½	1½	4	3½	70x15
12	7	12	2.00	60	60	120	1115	1½	2	5	4	72x15
14	8	12	2.61	60	60	157	1450	2	2½	5	4	73x18
16	10	18	6.12	60	90	367	3400	2½	3	8	6	98x22

THESE pumps are suitable for general Boiler Feeding and Pressure work and are noted for their small steam consumption. They are simple, compact, accessible and durable machines, having large direct water passages and full valve areas, which reduce water friction to a minimum.

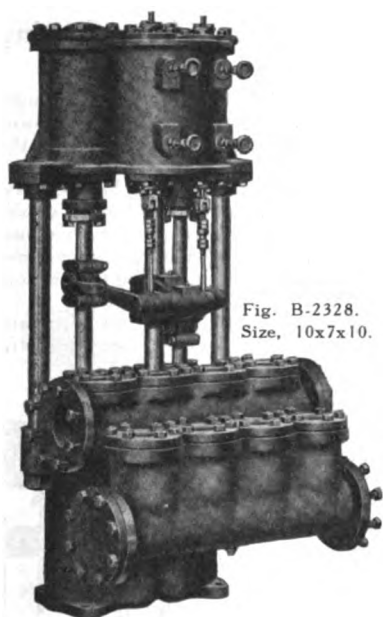


Fig. B-2328.
Size, 10x7x10.

Vertical Duplex Piston Pumps.

Blake-Knowles Type L-O—For Boiler Feed or Pressure Service.

THIS type of pump is desirable for use where floor space is restricted. The water ends are designed so that the valves work in separate chambers or pots, thereby affording unusual strength for pumping against high pressures.

In this pump the steam cylinders are provided with piston valves and outside valve adjustments, so that the length of stroke can be regulated even while the pump is in operation. The use of piston valve allows the pumps to be run without cylinder lubrication.

Maximum working pressure: steam end, 300 lbs.; water end, 300 lbs.

Vertical Duplex Piston Pumps.

Blake-Knowles Ballast Type.

THESE pumps are designed to meet the requirements for serviceable and reliable pumps for lifting large quantities of water and other liquids to a limited height. They are used extensively on steamers navigating in fresh waters, for pumping ballast water, and on tank steamers handling oil in bulk for pumping oil from the tanks. The pumps of this line are designed so as to occupy the least possible space and are at the same time easily accessible in every part. The water chests are raised so as to insure submergence of the water pistons, adding to their efficiency in contending with high suction lifts.

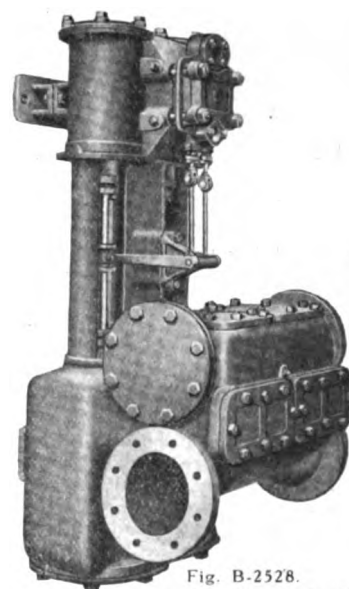


Fig. B-2528.
Size, 7½ x 10 ¼ x 10.

WORTHINGTON PUMP AND MACHINERY CORPORATION

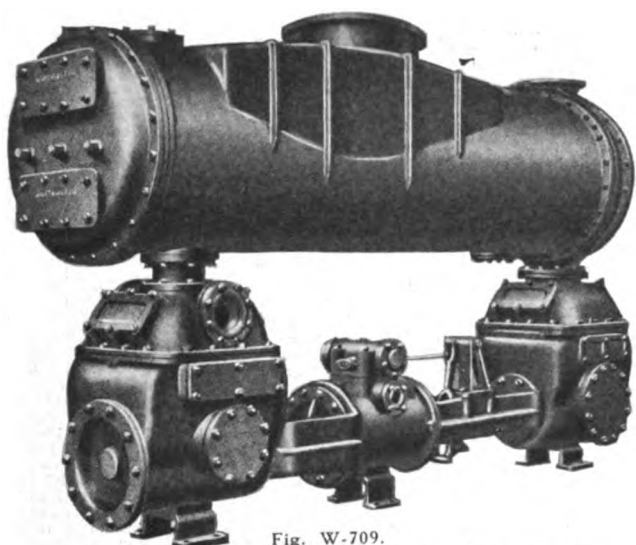


Fig. W-709.
Worthington Standard Surface Condenser, Mounted over
Combined Air and Circulating Pump.

WORTHINGTON STANDARD SURFACE CONDENSERS

are built in sizes covering every requirement. The main castings and the water bonnets are made of close-grained cast iron. The shell is frequently made of steel plate for marine use, in which case the condenser is not only furnished with the customary water, vacuum pump and exhaust steam openings, but also with taps for soda, priming, auxiliary and wash-out connections. The tube heads are independent plates and the tubes of seamless drawn brass. These tubes pass thru stuffing boxes in the tube heads, which have threaded brass ferrules, each with a lip on the inside, as shown in the illustration. This lip prevents the tube from creeping, and at the same time permits expansion and contraction. The tubes can be readily removed and the stuffing boxes easily repacked. The bonnets and cover heads are provided with suitable openings so as to permit ready inspection, etc.

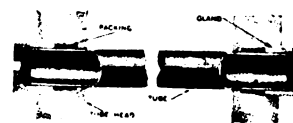


Fig. W-710.
Worthington Standard
Tube Gland.

The illustration shows a very compact arrangement for mounting surface condenser over our combined air and circulating pumps.

Blake-Knowles Twinplex Beam Air Pump and Condensing System

THE twinplex beam air pump combines in one unit a wet and a dry vacuum pump. One cylinder handles the condensate, and the other the air and non-condensable vapors. Fig. B-2783 illustrates the general features of the Twinplex pump.

In the Twinplex system the air and vapors are effectively cooled before leaving the condenser, this being accomplished by passing them through a cooler consisting of a certain portion of the condenser tubes set aside for this purpose. The dry suction pipe conveys the air and vapors to the dry cylinder and is entirely independent of the wet suction pipe, which conducts the condensate from the bottom of the condenser to the wet cylinder.

The dry cylinder discharges the air and vapors through a cross pipe and spring-loaded valve to the wet cylinder between the head valve plate and bucket. In order to secure the maximum vacuum it is necessary to seal the valves of the dry cylinder with water at a temperature approximately that of the incoming air and vapor.

This water is taken from the discharge chamber of the wet cylinder, and by the difference in pressure between the wet cylinder discharge and the vacuum in the dry cylinder is forced into the latter cylinder between foot valves and bucket through a tubular cooler, the purpose of which is to reduce the temperature of the sealing water to that of the air and non-condensable vapors entering the dry cylinder. The circulating water for this sealing water cooler can be taken from any source where cold water under pressure is available. A common arrangement is to pipe the cooler in a by-pass between the discharge

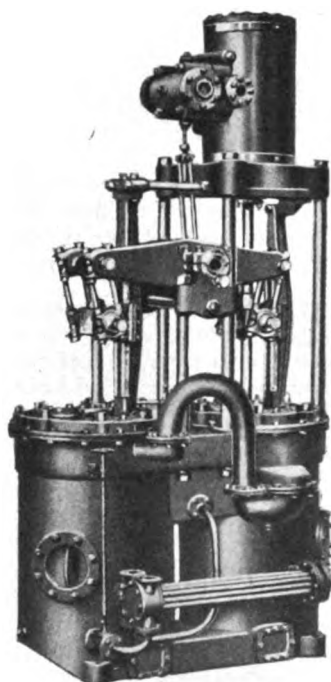


Fig. B-2783. Size, 14x28x18.

and suction lines of the condenser circulating pump. It is evident from the above description that the Twinplex air pump handles the air and vapors at the minimum volume. Therefore, a small and light Twinplex pump gives the same result as larger and heavier pumps of other types. The importance of this for marine service will be appreciated.

Vertical Simplex Single Acting Air Pumps—"V-S" Type

THE pumps here illustrated are light-weight machines adapted for yachts and torpedo boats and for situations where floor space is extremely limited; particularly applicable for high vacuum service with steam turbine installations. They are single machines, occupying a minimum of space and having the advantages of twin beam air pumps in that the water currents are always in the same direction, i.e., are not churned and aerated by reversals, as is the case in double-acting types of air pumps.

The steam end works on the "differential" principle, in consequence of which a steady and uniform velocity of piston travel is realized. These machines are particularly adapted for double installation, i.e., arranged in cross-connected pairs, one pump being a reserve, which can be immediately started in case of an accident to the other, or they can be operated together in the event of emergency loads.

NOTE—These pumps run smoothly at high speeds, maintaining maximum vacuum.

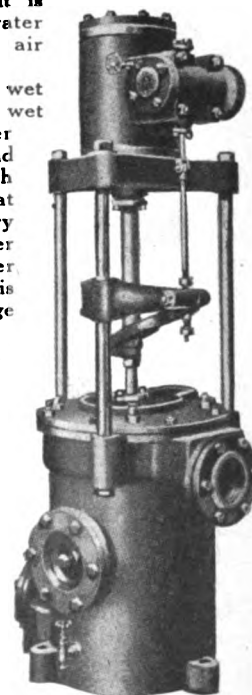


Fig. B-2498. Size, 7½x15x10.

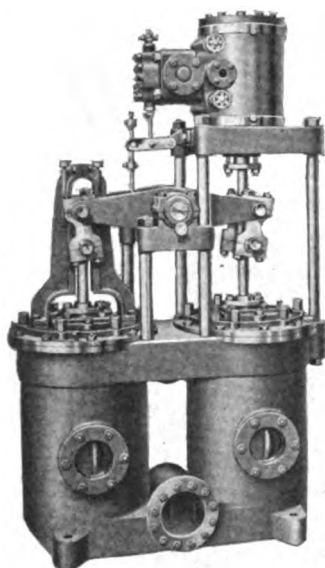
Continued from
Preceding Pages**WORTHINGTON PUMP AND MACHINERY CORPORATION****BEAM AIR PUMP**

Fig. B-2104. Size, 9x18x12.
For Surface Condenser Work.

FIG. B-2104 illustrates a Blake-Knowles type vertical single-acting beam air pump, as furnished for marine and land installations. This pump is particularly adapted to marine service, maintaining the highest vacuum with limited space requirements. The construction is high-class throughout, and incorporates the Blake-Knowles patented simplex style "A" steam end and valve gear. The air cylinders are of the single-acting type, provided with ample hand-hole plates and provision for drains. The construction is accessible and designed to stand considerable abuse. These pumps can be furnished with either

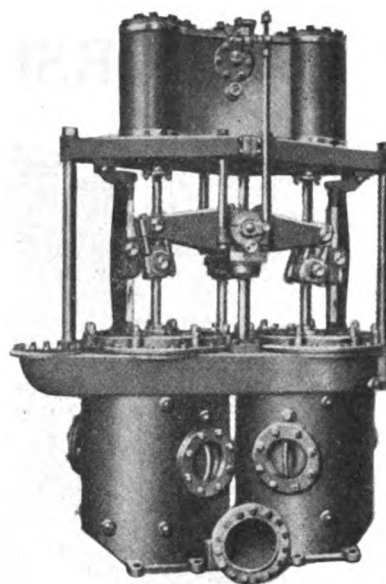


Fig. B-2485. Size, 12x30x18.
For Surface Condenser Work.

single steam cylinder, as shown in Fig. B-2104, or with two steam cylinders, as shown in Fig. B-2485.

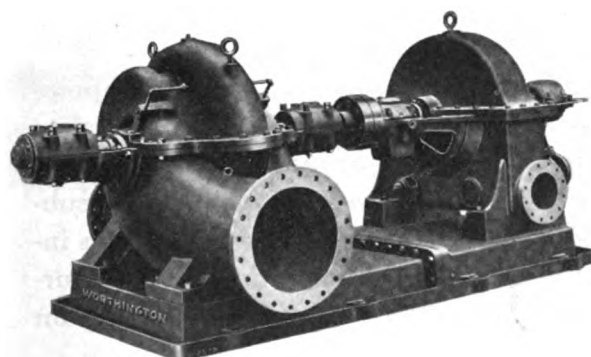
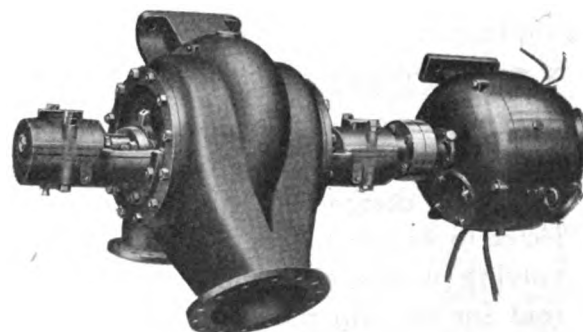
CENTRIFUGAL PUMPS

Fig. W-756.
Steam Turbine Driven B. S. Split Casing Circulating Pump.



Worthington Double-Suction Volute Ballast Pump.

WHERE centrifugal pumps are desired to circulate the water to surface condensers, the Worthington line offers pumps of many designs which, on account of space limitations, cannot be illustrated here.

The split casting volute pump shown in Fig. 756 meets most requirements for quick accessibility, high speed, simple design and small maintenance cost. Special types of centrifugal pumps, however, are needed where unusual nozzle positions must be met on account of location, or special drives must be utilized, whether vertical or horizontal.

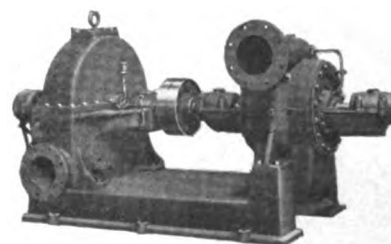
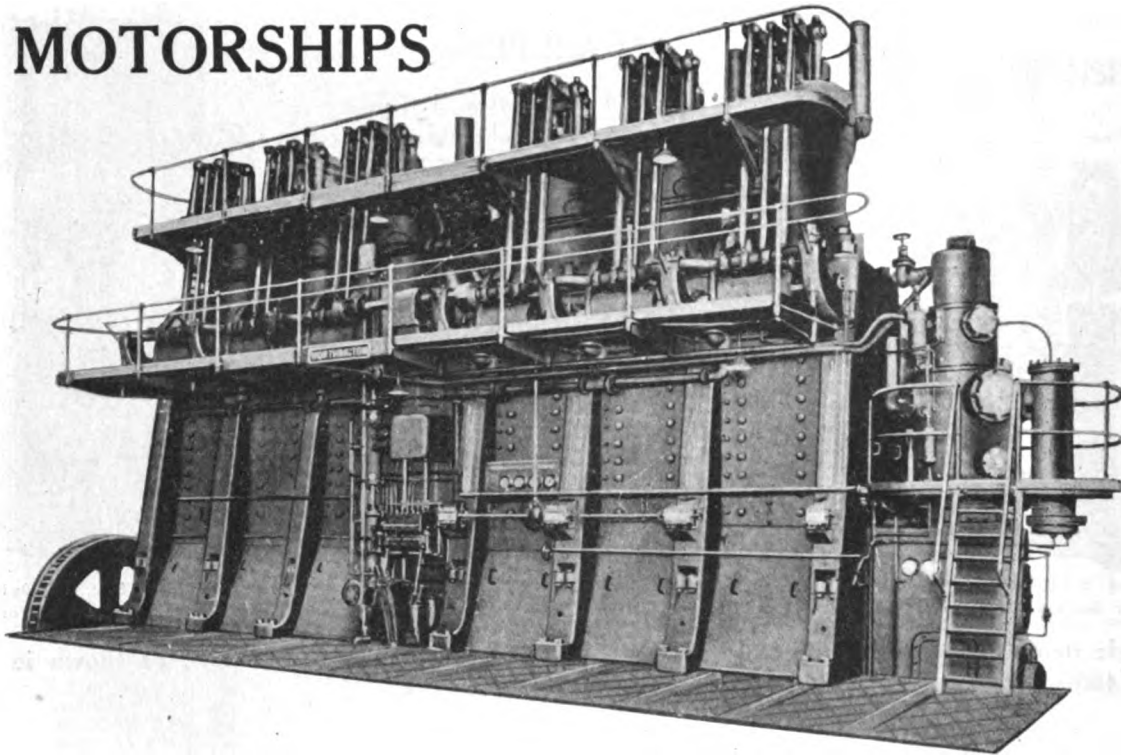


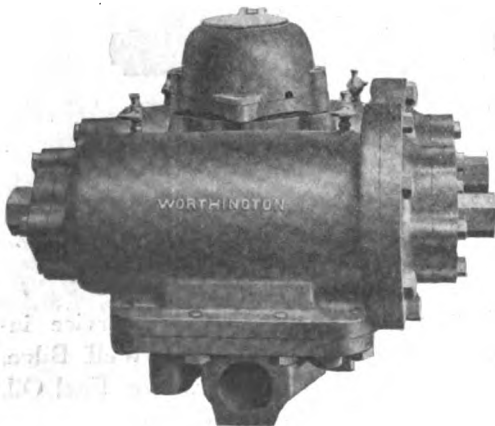
Fig. W-717.
Turbine Driven Volute Pump.

Worthington pumps for Marine Service include Feed, Circulating, Air, Hot-Well, Bilge, Ballast, Sanitary, Fresh Water, Fire, Fuel Oil, Bunker and Lubricating Oil Pump.

WORTHINGTON PUMP AND MACHINERY CORPORATION**MOTORSHIPS**

Worthington Marine Oil Engine, 2400 H. P.

WORTHINGTON Pump and Machinery Corporation has completed its preparation for the production of motorship machinery and is now prepared to take and execute orders for complete engine-room equipment. A new All-American design of Diesel main propelling engine has been developed and subjected to very complete tests at our Snow-Holly Works. Engine-room auxiliaries involving pumps, air compressors and auxiliary oil engines generating electric current for all ship purposes are available from our other Works specializing on these units.

Worthington Duplex Piston Oil Meters

FOR measuring crude oil, petroleum and naphtha, from and into tanks, and for recording the amount of oil used in connection with oil-burning apparatus, the Worthington Duplex Piston Oil Meter is indispensable. We manufacture all types of meters, but have found that the only form of construction which is accurate and reliable for oil-measuring purposes is the positive displacement machine of piston type. An adjusting device found in no other measuring apparatus permits of the exact calibration of the meter under actual working conditions.

Continued from
Preceding Pages**WORTHINGTON PUMP AND MACHINERY CORPORATION****OIL BURNING EQUIPMENT**

WORTHINGTON carries in stock horizontal and vertical pumps in a multitude of styles and sizes to meet any requirement of fuel oil service. The line includes horizontal and vertical types for cargo, booster and supply service in connection with light or heavy fuel oil. Other types are stocked suitable for handling extra heavy oils and for spraying under pressure of 200 lbs. or above. They are particularly desirable for use where floor space is limited. Special horizontal pumps are built, good for oil pressures from 450 to 1,000 pounds.

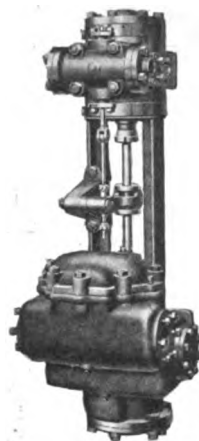


Fig. B-2855. 6 1/2 x 7 x 8.
Fuel Oil Booster Pump.
462 Furnished for
U. S. Destroyers.

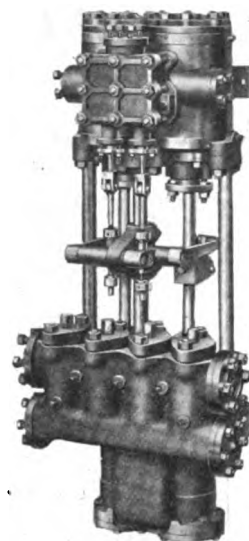
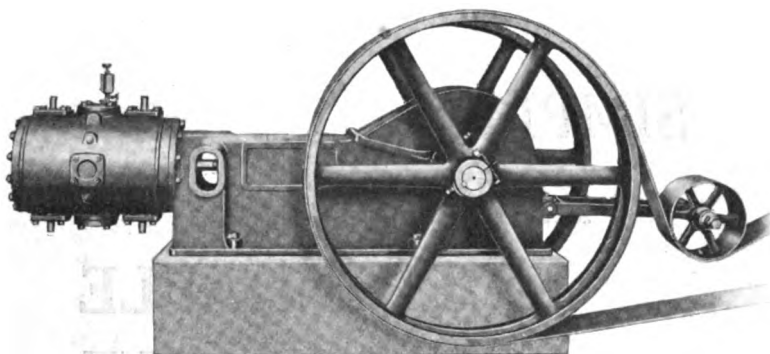


Fig. B-2786. 5 1/2 x 4 x 8.
Fuel Oil Supply Pump.
604 Furnished for
U. S. Destroyers.

Single Laidlaw FEATHER Valve Air Compressor

(Reg. U. S. Pat. Off.)

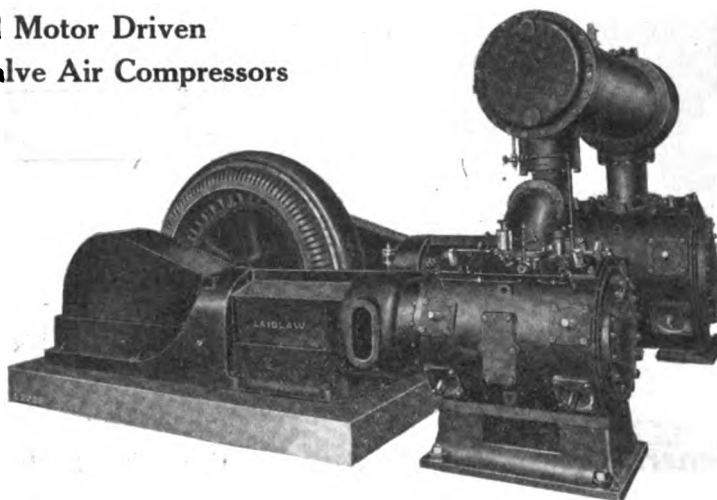
Arranged for Close Belt Electric Drive



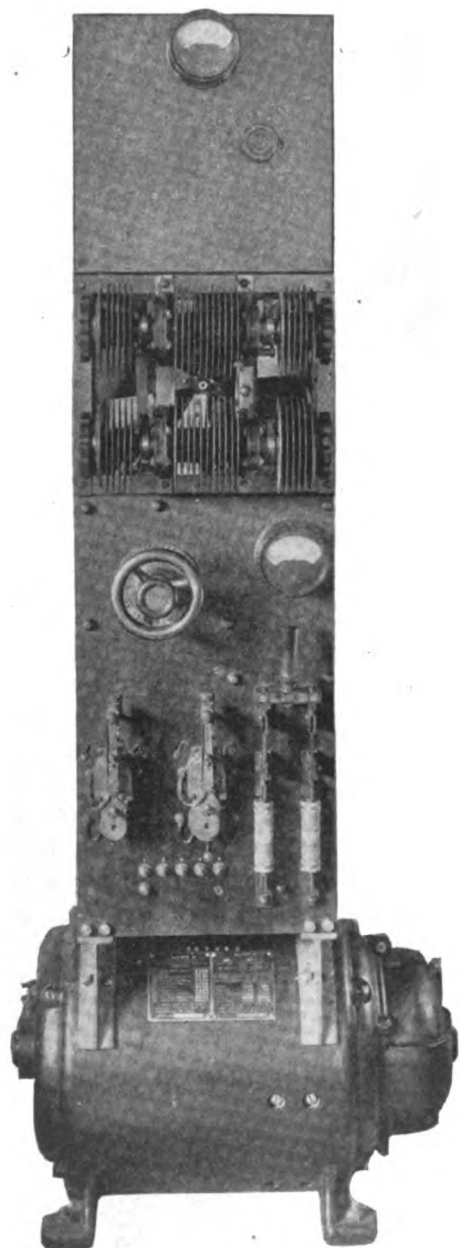
THESE compressors are particularly adapted for use with fuel oil pumping systems for supplying air for atomizing, or for furnishing air under pressure for any purpose. All Worthington compressors are equipped with the famous Laidlaw "Feather" valves (Reg. U. S. Pat. Off.), the simplest and most reliable valve for compressor work.

**Direct Connected Motor Driven
Laidlaw FEATHER Valve Air Compressors**
(Reg. U. S. Pat. Off.)

WORTHINGTON carries in stock a full line of sizes covering single and duplex belt-driven, single and duplex steam-driven and duplex direct connected motor-driven air compressors.



ONE WAY ONLY THE BEST WAY—BUY!



2 KW. Transmitter and Motor
Generator—Type 12-D

We Sell Our Sets

RADIO

For SHIP and
LAND Stations

SIMPLE
EFFICIENT
DEPENDABLE
DURABLE

No Critical Adjustments

CUTTING & WASHINGTON RADIO CORPORATION

General Offices: 6 and 8 WEST 48TH STREET, NEW YORK

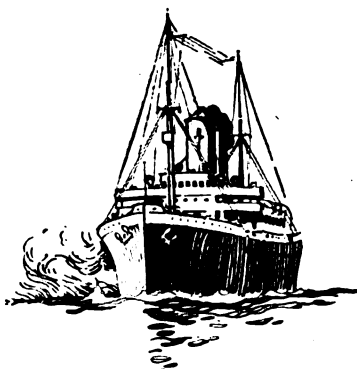
Cable Address: CUTWASH, New York

FROM SHIP-TO-SHIP AND SHIP-TO-SHORE

RADIO



THE RADIO CORPORATION OF AMERICA includes the Marconi Wireless Telegraph Company, and enjoys the exclusive rights to all wireless inventions and developments, and to the manufacturing facilities, of the General Electric Company. Thus has been formed an organization of remarkable strength and ability, and world-wide wireless service.



THE RADIO CORPORATION OF AMERICA has put into successful commercial operation the first direct wireless service between the United States and Great Britain, the United States and Scandinavia and the United States and Honolulu and Japan. These three trans-oceanic radio circuits raise the science of radio communication to a point of great scope and practical efficiency. These extensive operations are at the same time a means of lowering the rate of international communication. In addition to all this, the RADIO CORPORATION OF AMERICA is working on rapidly maturing plans for other circuits in other parts of the world.

SHIPS—over a thousand of them—are equipped for wireless communication

by the RADIO CORPORATION OF AMERICA. Their messages are flashing continually across the Seven Seas.

TWENTY YEARS OF EXPERIENCE have been brought into the development and perfecting of the service of this corporation. Ships carrying the wireless apparatus and service of the RADIO CORPORATION OF AMERICA bear one of the primary preventions against marine disaster.

SHIP-WIRELESS may be bought outright, may be leased, and may be bought or leased in addition to our service of inspection, maintenance and operation. We provide licensed, skillful and trustworthy operators. Also our service and inspection depots are located at all important seaports of the world.

Our Nearest Office Will Give You All Details and Information

RADIO CORPORATION OF AMERICA

EDWARD J. NALLY, President

WOOLWORTH BUILDING

NEW YORK CITY

BRANCH OFFICES IN THE U. S. A.

BOSTON
NEW ORLEANS
SEATTLE

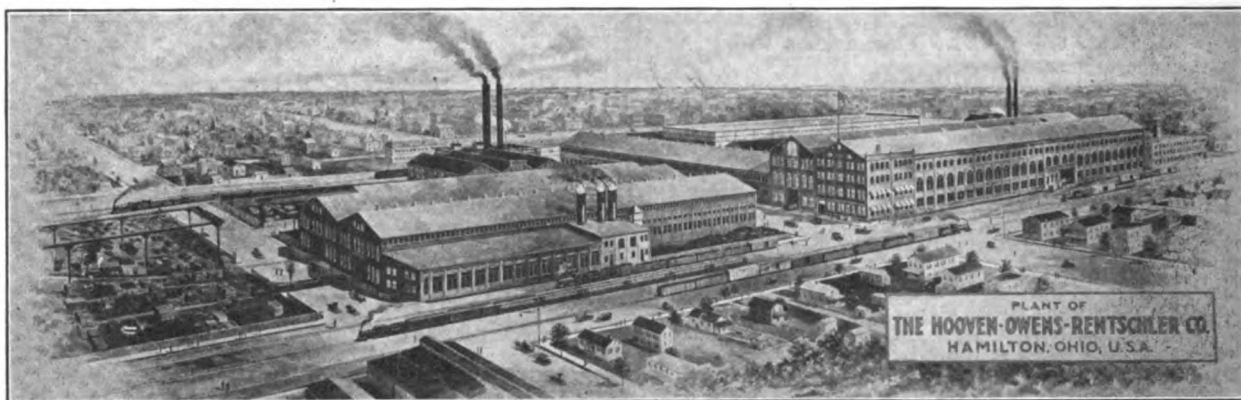
PHILADELPHIA
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BALTIMORE
PORT ARTHUR
SAN FRANCISCO

NORFOLK
CLEVELAND
SAN PEDRO

SAVANNAH
CHICAGO
HONOLULU

Hamilton Marine Engines



PLANT OF THE HOOVEN, OWENS, RENTSCHLER CO., HAMILTON, OHIO

Standardized Marine Engines

Though we can, and will if necessary, build individual marine engines of any good design from 500 to 5,000 h. p., we believe that this is not the way to get *quality*—not considering the additional cost involved.

The fallacy that standardized production in itself meant poorer quality has been exploded in so many industries that the real truth has finally come into its own—that the royal road to quality is by a standardization that permits multiple machining, gives uniform accuracy and interchangeability of parts, and *incidentally* lowers the cost and sale price.

Low Cost Quality

We believe implicitly in standardized marine engines.

Any engine built from our standardized design costs us considerably less than an engine of the same horse power which varies from our design so much that our patterns, jigs, etc., are useless. This saving we pass along to you.

But it is not the lower cost that we emphasize. It is the fact that standardization enables us to make better engines. This is easy to explain. The jigs insure accuracy. The workmen are familiar with the various parts and they do not consider each one as an individual problem. The setting of any part in the tool has been pre-determined. The operator has done the same work before in exactly the same way, and knows precisely how it should be done.

One tool can machine ten parts at one setting as easily as one part—but the chief value lies in the fact that the ten parts are machined alike; not to a “go and no-go” gauge which might permit slight variation.

From the foundry to the assembly floor—or we should say to the ship itself—there are innumerable savings in time and labor and a multiple of opportunities to improve quality that standardization alone gives.

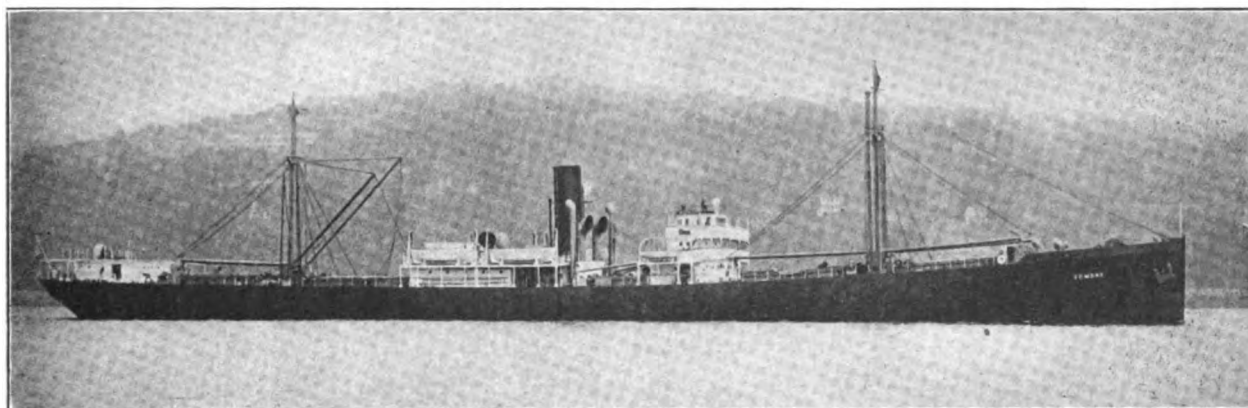
The whole argument for standardized marine engines rests upon one point. *The engines must be right.* The quality of materials, the excellence of design, the skill of the workmen, and above all, the integrity of the house that makes them—this is the crux of the whole matter. If these are wrong the whole plan is futile. If they are right, nothing can prevent the more universal adoption of the standardized engine.

To prove the quality of materials used in Hamilton engines, we can refer to nearly five thousand stationary engines in operation throughout the whole country. Engine Number 1, installed in 1882, is still in perfect running order.

As for design, we have embodied in Hamilton Marine Engines the latest improvements and refinements known to the marine steam-engineering field. We refer you to your own engineers, consultants—or to the Hamilton engines now driving ships, though many of these were produced under the high tension of war emergencies.

THE HOOVEN, OWENS, RENTSCHLER CO. HAMILTON, OHIO

Hamilton Marine Engines



S. S. EDMORE, DRIVEN BY HAMILTON ENGINES

But our strongest claim is for the men who form our organization. Not so much our engineers—though they are the best we could get—but the workmen in the foundry, at the tools, on the benches, or on the assembly floor. After all, they are the men who make the engine, and we are confident that we have the finest body of marine engine builders in the country. *They* put the Hamilton quality in the parts, which finally proves itself as the ship smashes her way through a rough sea.

General Construction of Engines

The Hamilton Marine Engine is of the vertical inverted direct acting type. The cylinders are supported from the bed-plate by columns securely fastened to cylinders and bed-plate and held in place by reamed bolts.

The valve gear is of the Stephenson link motion type. Independent steam cylinders, controlled from the operating platform on the starboard side of the engine, reverse the main engine. The valve gear is fitted with link-up screws for altering the cut-off for any cylinder independently.

Turning engine operated by steam is furnished for the large marine engines, actuating the crank shaft through worm gearing; ratchet for hand operation is also provided.

Provision is made for counter-balancing the weight and inertia of the valves. For slide valve balance piston is fitted at the top of the valve chest.

Handling gear for operating the throttle valve, by-pass valves and drain valves is carried to the handling station on the starboard side of the engine.

Complete equipment for oiling all running parts is furnished and located conveniently for the operator; in addition, water service and water cooling is furnished in accordance with the latest and best marine practice.

The thrust bearing is of the horseshoe type, and the thrust shaft is flanged and drilled for receiving line shaft.

Complete set of steam gauges, counter and clock are mounted on ornamental boards attached to the main engine in plain view of the operator.

Special Designs

Though we are convinced that in the majority of cases a standardized engine is best, we know that conditions will arise in certain cases where unusual installations are necessary.

We have the engineers to develop any design of steam marine engine; big men who will co-operate with you or your engineers in the solving of any problem. We also will build outright from your designs.

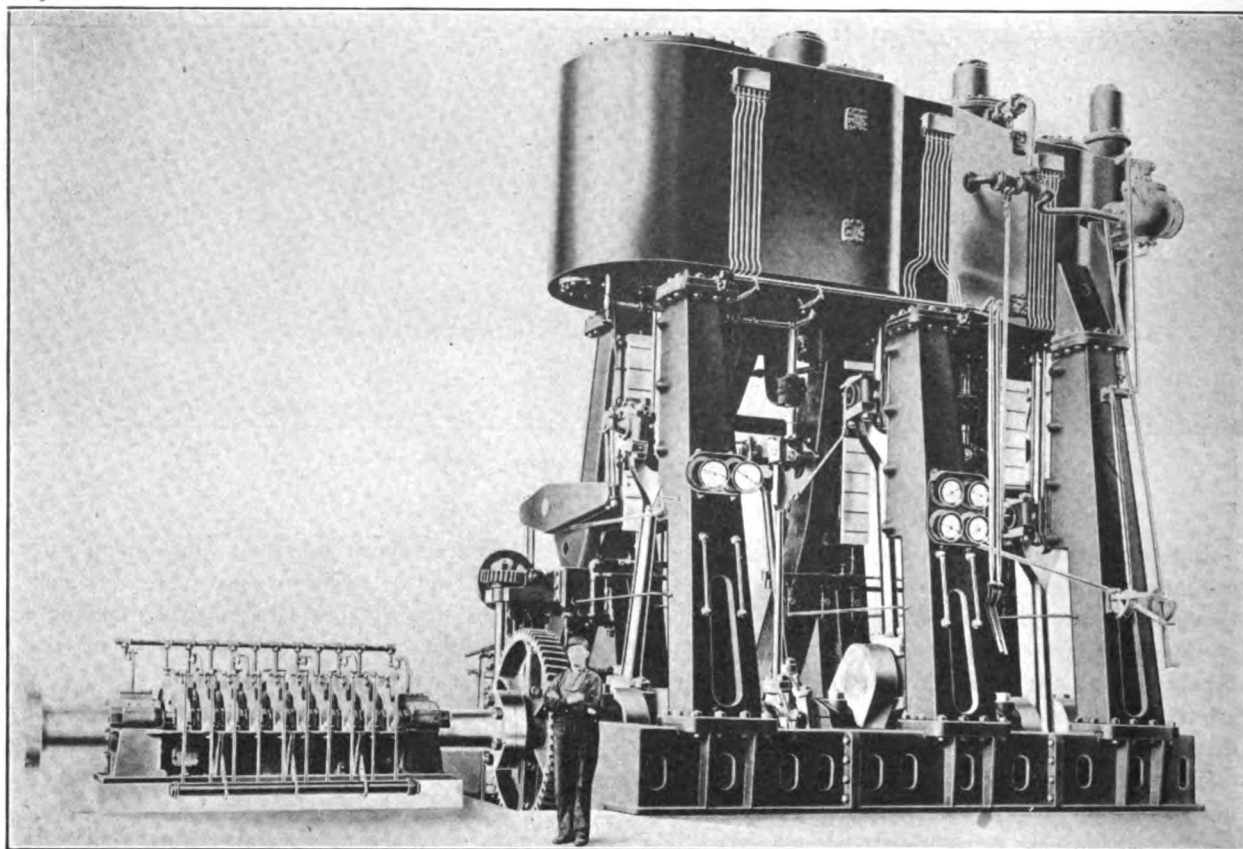
Our facilities are such that we can handle any size and any quantity of work. During the war we worked up our production to *four complete 2800 h. p. marine engines a week.*

We built Henry Ford's 60,000 h. p. power plant at Detroit—which is evidence enough of our large resources.

Write to our Marine Department for required information.

THE HOOVEN, OWENS, RENTSCHLER CO. HAMILTON, OHIO

Hamilton Marine Engines



2800 H.P. TRIPLE EXPANSION ENGINE

Ease of Replacements

Throughout the entire process of machining, jigs and fixtures are used wherever possible. Many machine shops correct errors in the machining of bearing surfaces by means of shims used in the assembling operations. It is the practice of the Hooven, Owens, Rentschler Co., however, to depend for satisfactory assembly on the care and accuracy of the previous machining operations. The manufacturing method insures interchangeability of all parts and the utmost possible ease of repairs and replacements.

Quick Repair Part Shipments

Because of the constant, multiple production of Hamilton engines and their parts, a large stock of parts is maintained at all times, permitting prompt shipment. The central location of the plant and its proximity to important trunk lines insure quick shipments to all coast and lake ports and enable delivery of repair parts to be made in the shortest possible time.

Special Repair Part Bulletins for Hamilton Engines

For convenience in ordering repair parts for the standard Hamilton engines, special bulletins have been published. These bulletins contain complete parts, lists of these engines with order references, and detailed and descriptive drawings of engine parts, together with complete instructions for order-

ing repairs as shown below. Every operator of ships with Hamilton reciprocating engines should have a copy. Repair parts bulletins sent free on request.

Instructions for Ordering Marine Engine Repair Parts

In order that any customer may secure the proper part, it is necessary in ordering to give full information in connection therewith.

Consequently, the attention of the customer is directed to the fact that on each engine is supplied a name-plate, giving name of manufacturer — also when built for U. S. Shipping Board, their Engine Number.

In addition to the figure number of cut as shown in the bulletin — to aid in securing the correct piece, where a customer is ordering a new cylinder, cylinder liner, or a new valve — gauges of the bore, into which other parts must fit, should be supplied, as well as length of piston rod, when same is desired. The various pieces in detail are shown in the illustration herein, and we have further printed a list of pieces and piece numbers referring to parts as shown in the illustrations.

We suggest in the interest of prompt service and to avoid mistakes, that your order should be made out as follows:

For any Marine Engine of _____ Horsepower capacity.

Order Blank

Name of Purchaser.....
 Address of Purchaser.....
 Ship to.....
 Destination.....
 Ship How..... Piece Number..... Name of Piece.....
 Number of Pieces Required..... Figure Number in Bulletin..... Page No.....
 State Whether High, Intermediate or Low Pressure.....
 Size of Engine Cylinder, H. P..... M. P..... L. P.....
 Stroke of Engine.....
 Number.....
 Name of Manufacturer on Name-plate.....

In the figure illustrations, it will be noted that some bolts, pins, keys and the like, do not have any separate piece number.

If these parts are wanted, purchaser should plainly state this fact in his order so that these small pieces may be included complete.

THE HOOVEN, OWENS, RENTSCHLER CO. HAMILTON, OHIO

Hamilton Marine Engines

INDICATED HORSE POWER FOR HAMILTON TRIPLE MARINE ENGINES For Most Economical Operation at Various Steam Pressures and Revolutions

Size Engine	Boiler Steam Pressure	Revolutions Per Minute															
		65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140
12½-21½-36	170	..	..	..	..	..	..	..	413	434	455	476	496	517	537	558	578
	180	..	..	..	..	..	..	..	439	462	483	505	527	550	571	593	615
	190	..	..	..	..	..	..	..	466	489	512	536	558	582	605	629	651
	200	..	..	..	..	..	..	..	492	517	541	566	590	615	639	664	688
15½-26-44	170	..	..	..	..	..	..	..	682	716	750	784	818	852	886	921	955
	180	..	..	..	..	..	..	..	725	761	797	834	870	906	942	978	1014
	190	..	..	..	..	..	..	..	768	807	845	884	922	960	999	1036	1075
	200	..	..	..	..	..	..	..	812	852	892	932	973	1014	1055	1095	1135
18-30½-52	180	..	..	..	873	919	973	1026	1080	1134	1188	1242	1295	..	..	..	..
	190	..	..	..	926	976	1033	1090	1146	1205	1262	1320	1376	..	..	..	..
	200	..	..	..	977	1029	1089	1152	1210	1272	1331	1392	1451	..	..	..	..
	210	..	..	..	1030	1086	1149	1214	1275	1344	1405	1470	1532	..	..	..	..
19-32-56	180	..	929	995	1060	1126	1194	1260	1326	1391	1458	..	..	..	..	..	..
	190	..	984	1054	1124	1194	1264	1335	1405	1475	1545	..	..	..	..	..	..
	200	..	1041	1115	1190	1264	1338	1414	1488	1562	1635	..	..	..	..	..	..
	210	..	1097	1175	1254	1334	1410	1490	1568	1645	1725	..	..	..	..	..	..
20½-35-60	180	..	1255	1345	1434	1522	1613	1702	1792	1882	1972	..	..	..	..	..	..
	190	..	1334	1427	1523	1616	1712	1807	1904	1998	2095	..	..	..	..	..	..
	200	..	1407	1506	1607	1707	1807	1908	2018	2110	2210	..	..	..	..	..	..
	210	..	1484	1589	1695	1800	1905	2012	2120	2225	2334	..	..	..	..	..	..
23-39-66	180	..	1569	1680	1794	1905	2015	2135	2240	..	..	..	..	..	..	..	..
	190	..	1660	1780	1900	2020	2135	2260	2375	..	..	..	..	..	..	..	..
	200	..	1758	1880	2010	2135	2260	2390	2510	..	..	..	..	..	..	..	..
	210	..	1850	1984	2117	2246	2390	2514	2645	..	..	..	..	..	..	..	..
23-39-66	180	..	1680	1800	1920	2040	2160	2285	2400	..	..	..	..	..	..	..	..
	190	..	1780	1910	2032	2162	2290	2420	2540	..	..	..	..	..	..	..	..
	200	..	1884	2020	2150	2290	2420	2560	2690	..	..	..	..	..	..	..	..
	210	..	1984	2128	2265	2412	2550	2695	2832	..	..	..	..	..	..	..	..
24½-41½-72	180	..	2052	2200	2350	2495	2640	2788	2935	..	..	..	..	..	..	..	..
	190	..	2180	2335	2490	2645	2800	2960	3110	..	..	..	..	..	..	..	..
	200	..	2300	2468	2630	2795	2960	3125	3290	..	..	..	..	..	..	..	..
	210	..	2425	2600	2775	2945	3120	3295	3470	..	..	..	..	..	..	..	..
27½-46-78	190	2510	2700	2895	3090	3280	3475	..	..	..	..	..	..	..	..	..	..
	200	2650	2850	3055	3260	3465	3665	..	..	..	..	..	..	..	..	..	..
	210	2790	3010	3220	3442	3655	3860	..	..	..	..	..	..	..	..	..	..
	220	2935	3160	3384	3614	3845	4060	..	..	..	..	..	..	..	..	..	..
27½-46-78	190	2670	2870	3080	3280	3490	3690	..	..	..	..	..	..	..	..	..	..
	200	2820	3030	3250	3465	3585	3900	..	..	..	..	..	..	..	..	..	..
	210	2970	3195	3425	3655	3885	4110	..	..	..	..	..	..	..	..	..	..
	220	3120	3355	3595	3840	4080	4310	..	..	..	..	..	..	..	..	..	..
27½-46-78	190	2820	3040	3258	3475	3690	3920	..	..	..	..	..	..	..	..	..	..
	200	2980	3210	3440	3670	3900	4130	..	..	..	..	..	..	..	..	..	..
	210	3140	3380	3625	3865	4110	4350	..	..	..	..	..	..	..	..	..	..
	220	3300	3560	3810	4065	4320	4575	..	..	..	..	..	..	..	..	..	..
30-51-86	190	3195	3435	3685	3925	4175	4415	..	..	..	..	..	..	..	..	..	..
	200	3370	3635	3885	4145	4400	4660	..	..	..	..	..	..	..	..	..	..
	210	3560	3830	4110	4380	4660	4930	..	..	..	..	..	..	..	..	..	..
	220	3740	4020	4310	4600	4885	5170	..	..	..	..	..	..	..	..	..	..
30-51-86	190	3380	3640	3900	4160	4415	4680	..	..	..	..	..	..	..	..	..	..
	200	3565	3840	4110	4390	4660	4935	..	..	..	..	..	..	..	..	..	..
	210	3770	4060	4350	4640	4925	5220	..	..	..	..	..	..	..	..	..	..
	220	3955	4260	4565	4870	5170	5480	..	..	..	..	..	..	..	..	..	..

INDICATED HORSE POWER FOR HAMILTON QUADRUPLE MARINE ENGINES

For Most Economical Operation at Various Steam Pressures and Revolutions

Size Engines	Boiler Steam Pressure	Revolutions Per Minute					
		65	70	75	80	85	90
24½-36-53-78	200	2364	2545	2728	2910	3095	3270
	210	2480	2670	2860	3050	3245	3435
	220	2620	2820	3020	3220	3430	3630
	230	2745	2955	3167	3375	3590	3800
24½-36-53-78	200	2505	2695	2890	3080	3272	3465
	210	2625	2825	3030	3230	3440	3635
	220	2772	2985	3200	3415	3630	3840
	230	2905	3130	3350	3575	3800	4022
27½-40-59-86	200	3120	3360	3600	3840	4075	4315
	210	3285	3540	3790	4040	4300	4550
	220	3450	3715	3980	4250	4515	4780
	230	3620	3900	4180	4455	4735	5010
30-43½-64-93	200	3695	3980	4260	4550	4830	5120
	210	3890	4185	4485	4790	5080	5380
	220	4095	4405	4720	5040	5350	5670
	230	4295	4620	4950	5280	5610	5940

Estimated Weights of Standard Engines

Size	Bare	With Att. Pumps	With Att. Pumps and Thrust	Center of Gravity Complete	
				Above Center of Shaft	Aft of Center of H.P. Cyl.
12½-21½-36	40,000	42,500	45,000	41"	53"
27	..	..	..	..	..
15½-26-44	67,500	71,000	75,000	45"	58"
30	..	..	..	..	..
18-30½-52	88,500	92,500	100,000	50"	68"
33	..	..	..	..	..
19-32-56	132,500	138,000	150,000	54"	73"
36	..	..	..	..	..
20½-35-60	161,000	167,000	180,000	62"	83"
42	..	..	..	..	..
23-39-66	187,500	195,000	210,000	63"	89"
42	..	..	..	..	..
23-39-66	195,200	203,000	218,000	66"	89"
45	..	..	..	..	..
24½-41½-72	258,000	267,000	287,000	71"	93"
48	..	..	..	..	..
27½-46-78	319,000	330,000	353,000	69"	104"
48	..	..	..	..	..
27½-46-78	327,500	339,000	362,000	73"	104"
51	..	..	..	..	..
27½-46-78	336,000	348,000	371,000	77"	104"
54	..	..	..	..	..
30-51-86	370,500	385,000	411,000	73"	114"
51	..	..	..	..	..
30-51-86	381,000	396,000	422,000	77"	114"
54	..	..	..	..	..
24½-36-53-78	398,500	410,000	434,000	73"	154"
51	..	..	..	..	..
24½-36-53-78	411,000	423,000	447,000	77"	154"
54	..	..	..	..	..
27½-40-59-86	482,000	497,000	523,000	77"	162"
54	..	..	..	..	..
30-43½-64-93	544,000	561,000	589,000	77"	172"
54	..	..	..	..	..

THE HOOVEN, OWENS, RENTSCHLER CO. HAMILTON, OHIO

Hamilton Marine Engines

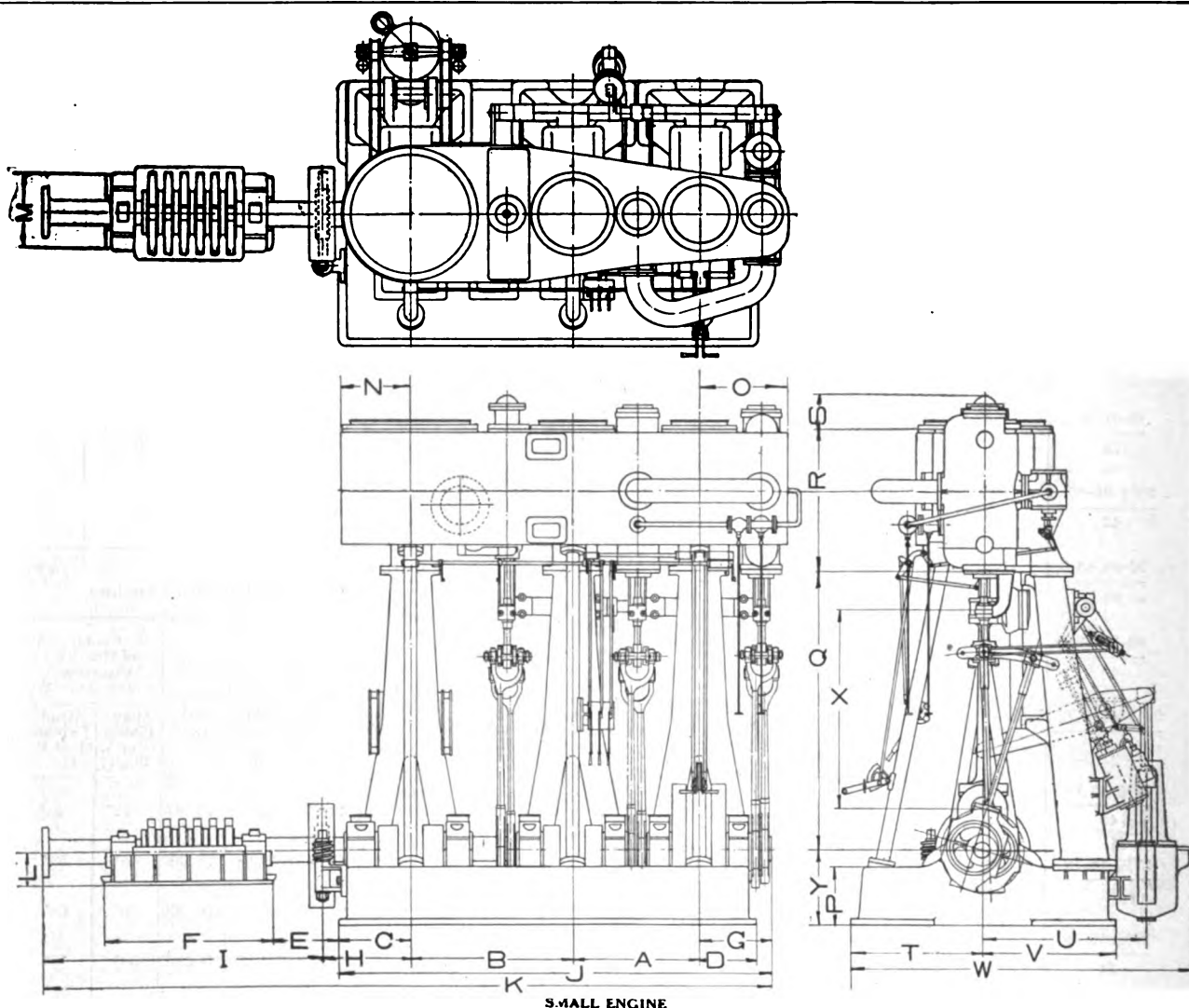


TABLE OF DIMENSIONS

Small Engines

Size Engine	12 1/4-21 1/2-36x27	15 1/2-26-44x30	18-30 1/2-52x33
Dimension			
A	43 1/2	45	53
B	52 1/2	59	69 1/2
C	22	23 1/2	27
D	19	20 1/2	23
E	20	21	21
F	56	61	68 1/2
G	24 1/2	25	29
H	26	27 1/2	31 1/2
I	80	88	92
J	137	148	172 1/2
K	226 1/2	244 1/2	275
L	12	13	13 1/2
M	25	26	31 1/2
N	21 1/2	25 1/2	29 1/2
O	27 1/2	29 1/2	32 1/2
P	14	16 1/2	18 1/2
Q	87	96	106
R	44 1/2	47 1/2	56
S	12 1/2	12 1/2	25
T	45	47 1/2	52
U	45	61 1/2	66
V	57	47 1/2	52
W	117	120	130
X	61	67 1/2	75
Y	24	27	30
Steam	4	5	6
Exhaust	12	15	16
Air Pump	15x10	18x12	18x15
Bilge Pump	3x10	3 1/2x12	4x15

Small Triple Expansion Engines

The bed-plate is of heavy construction with six girders for supporting the main bearings.

The main bearings are babbitted, with flat bottom shoe and separate cap.

The crank shaft is a forging built up into one section.

The connecting rod is of forged steel and of the standard marine type.

The crosshead guide is of the bar type, and the crosshead is a steel forging with slippers of cast iron lined with bearing metal and bolted to it.

The piston rods are steel forgings and are interchangeable.

The eccentrics are cast iron, with cast iron eccentric straps lined with bearing metal and forged steel eccentric rods and valve stems.

The turning gear is operated by a ratchet.

The thrust shaft is of forged steel and the thrust bearing is of the horseshoe type.

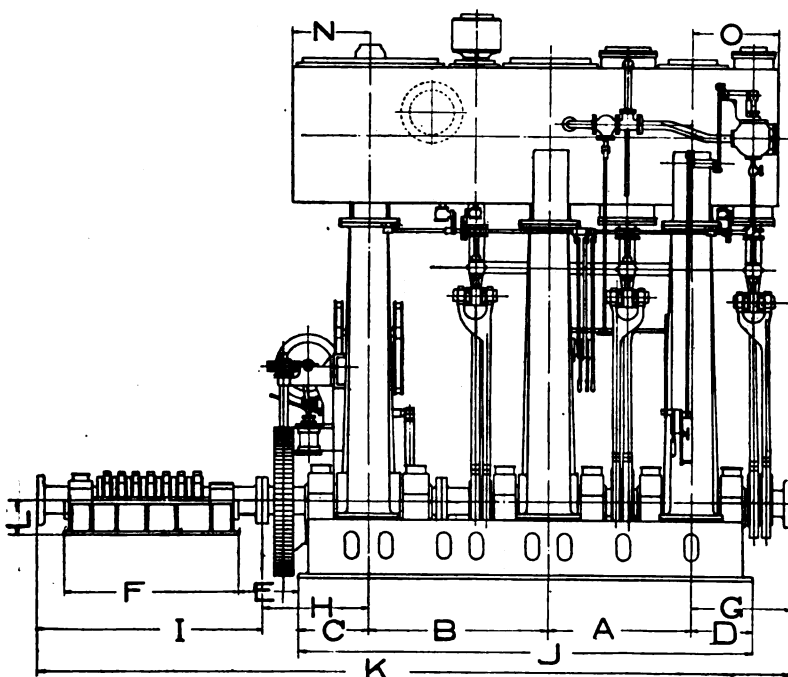
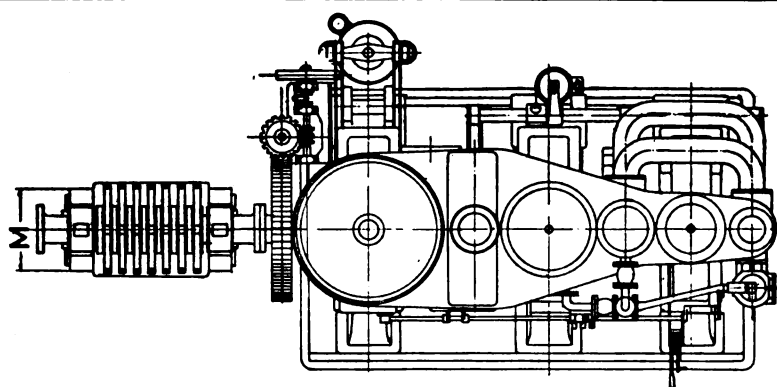
Guards are fitted where required for protection.

By-pass and drain piping is fitted to cylinders and operated from the working platform.

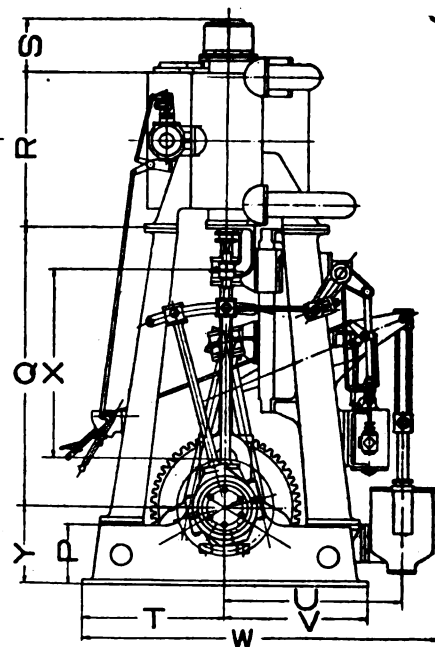
THE HOOVEN, OWENS, RENTSCHLER CO.

HAMILTON, OHIO

Hamilton Marine Engines



MEDIUM ENGINE



Medium Triple Expansion Engines

The bed-plate is of heavy construction with six girders for supporting the main bearings.

The main bearings are babbitted, with flat bottom shoes and separate caps. The lower shoes are fitted with removable half round shell.

The crank shaft is a forging built up in three interchangeable sections.

The connecting rod is of forged steel and of the standard marine type.

The crosshead guides for the smaller size engines are of the bar type. The larger engines have either single slipper type or double slipper type according to size of engine.

The throttle valve is of the poppet type. Larger engines are fitted with butterfly valve, and both valves are operated from the starting platform.

The thrust shaft is of forged steel and the thrust bearing is of the horseshoe type.

Guards are fitted where required for protection.

By-pass and drain piping is fitted to cylinders and is operated from the working platform.

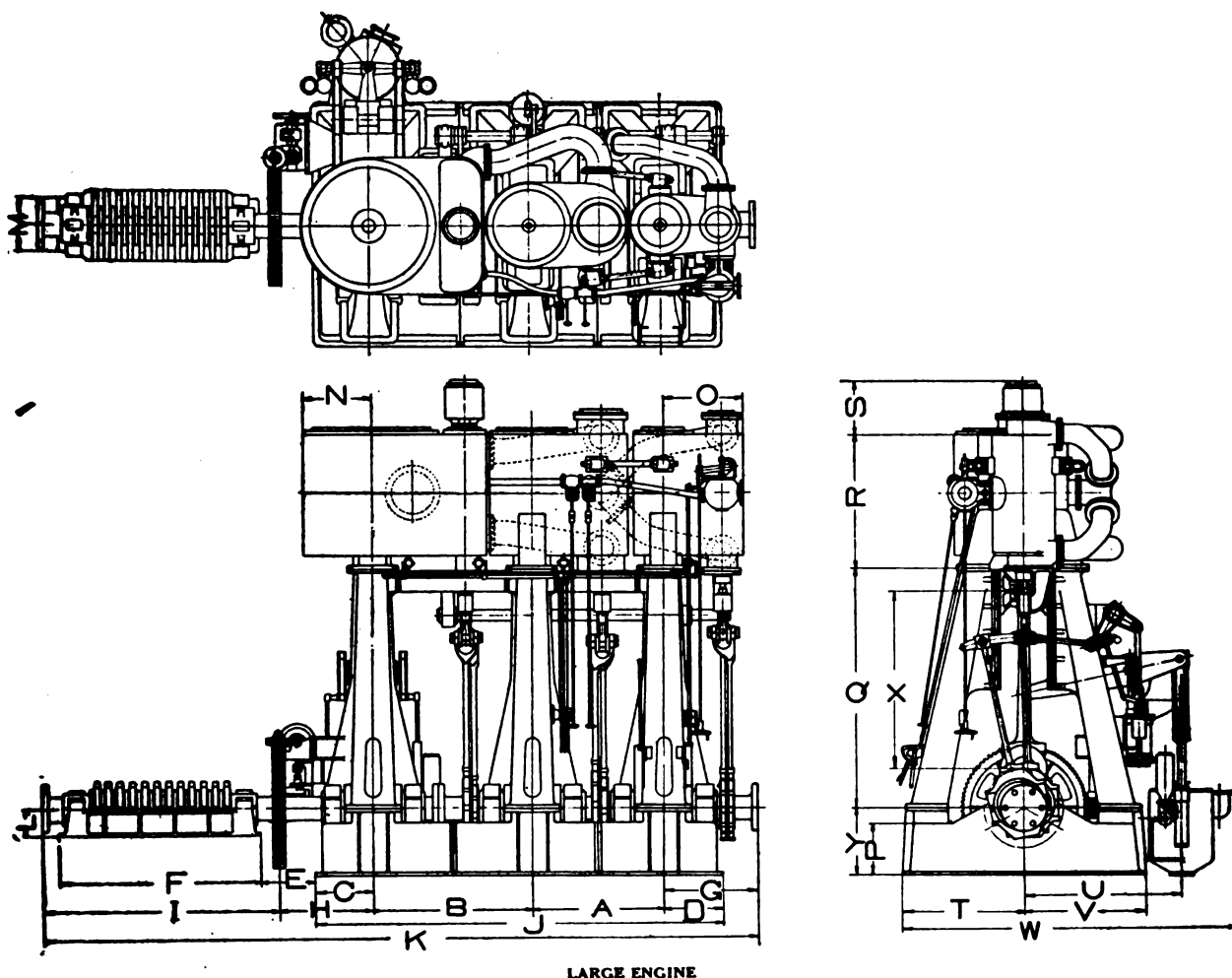
TABLE OF DIMENSIONS
Medium Engines

Size of Engine	19-32-56x36	20½-35-60x42	23-39-66x42	23-39-66x45	24½-41½-72x48
Dimension A	58½	67	72½	72½	74½
B	73½	82	89	89	93
C	28½	29½	30½	30½	34½
D	25½	29½	30½	30½	31½
E	29½	30½	31½	31½	37½
F	68½	85	88	88	110½
G	44½	48½	52½	52½	55½
H	44½	48½	52½	52½	55½
I	92	102	107	107	143½
J	185½	207½	222½	222½	233½
K	312½	348	374	374	412½
L	13½	14½	15½	15½	16
M	31½	32	33½	33½	34½
N	31½	34½	38½	38½	40½
O	34½	39	42½	42½	41
P	24½	24	24	24	26½
Q	114½	131	133	138½	149
R	63	71½	72½	75½	80½
S	25½	28½	29½	29½	27
T	58½	60½	62½	62½	65½
U	72	77	80	80	85½
V	58½	60½	62½	62½	65½
W	148½	158½	164	164	171½
X	81	96	96	100	108
Y	32	37	38½	38½	41
Size					
Steam Inlet	6	7	7	7	8
Exhaust	18	20	22	22	23
Air Pump	22x16	22x18	24x18	24x19½	26x21
Bilge Pump	4x16	4x18	5x18	5x19½	5x21

THE HOOVEN, OWENS, RENTSCHLER CO.

HAMILTON, OHIO

Hamilton Marine Engines



LARGE ENGINE

TABLE OF DIMENSIONS

Large Engines

Steam Engine	27½-46-78x48	27½-46-78x51	27½-46-78x54	30-51-86x51	30-51-86x54
Dimension A	84	84	84	95	95
B	102	102	102	110	110
C	37½	37½	37½	40½	40½
D	37½	37½	37½	40½	40½
E	33½	33½	33½	50½	50½
F	130	130	130	134	134
G	60	60	60	62½	62½
H	60	60	60	62½	62½
I	152	152	152	178½	178½
J	260½	260½	260½	286	286
K	458	458	458	508	508
L	17½	17½	17½	18½	18½
M	35½	35½	35½	38	38
N	44½	44½	44½	48½	48½
O	51½	51½	51½	53½	53½
P	35	35	35	36	36
Q	146½	154	161½	155½	163
R	83½	86½	89½	86½	89½
S	33½	33½	33½	34	34
T	77½	77½	77½	77½	77½
U	101½	101½	101½	101½	101½
V	77½	77½	77½	77½	77½
W	213	213	213	214	214
X	108	114	120	114	120
Y	45	45	45	48	48
Steam	9	9	9	10	10
Exhaust	27	27	27	30	30
Air Pump	28x22½	28x24	28x25½	30½x24	30½x25½
Bilge Pump	5x22½	5x24	5x25½	6x24	6x25½

Large Triple Expansion Engines

The bed-plate is of heavy construction with six girders for supporting the main bearings.

The main bearings are babbitted, with flat bottom shoes and separate caps, the lower shoes being fitted with removable half round shells.

The crank shaft is a forging built up in three interchangeable sections.

The connecting rod is of forged steel and of the standard marine type.

The crosshead guide is of the double slipper type, and the crosshead is a steel forging with slippers of cast iron lined with bearing metal and bolted to it.

The piston rods are steel forgings and are interchangeable.

The throttle valve is of the poppet type and fitted with butterfly valve, both being operated from the starting platform.

The thrust shaft is of forged steel and the thrust bearing is of the horseshoe type.

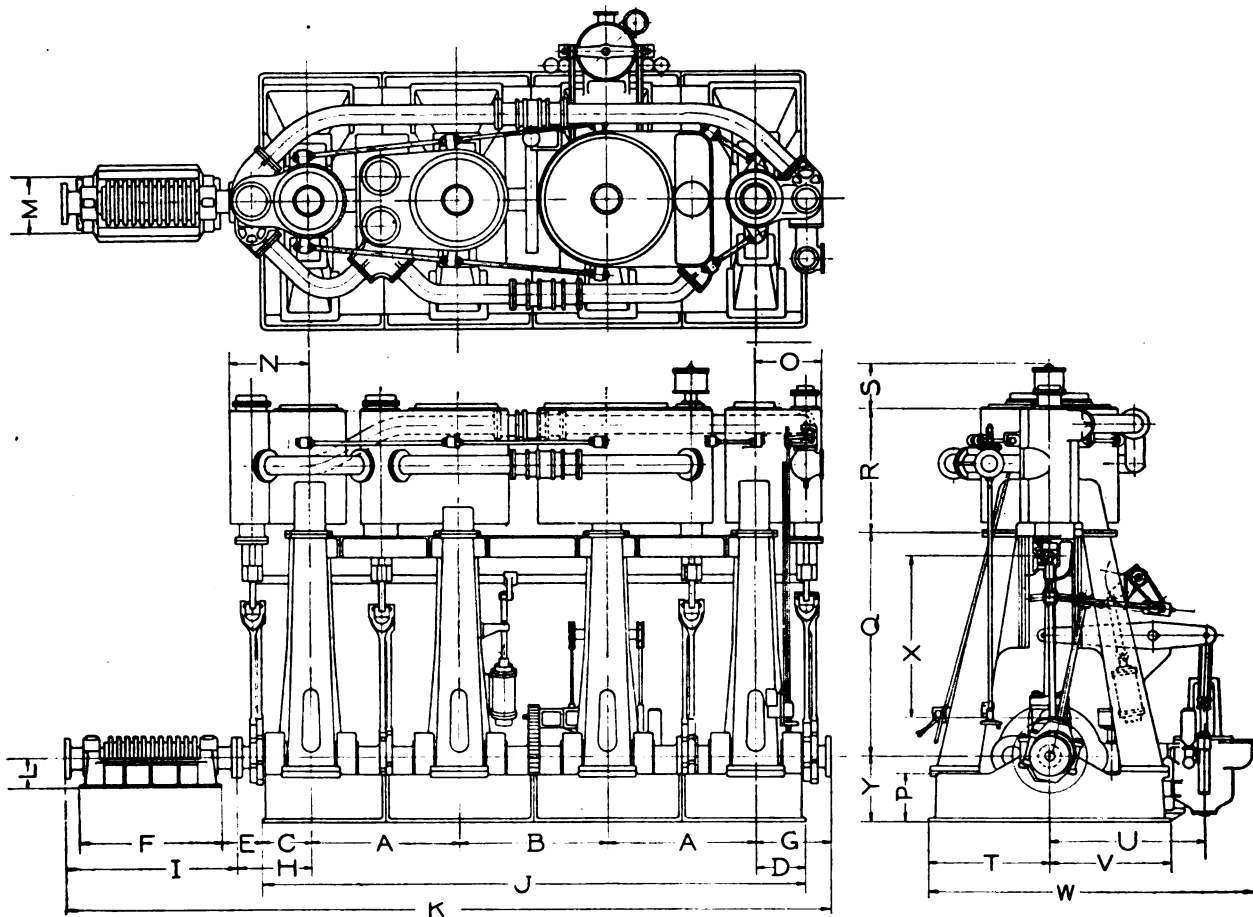
Guards are fitted where required for protection.

By-pass and drain piping is fitted to cylinders and is operated from the working platform.

THE HOOVEN, OWENS, RENTSCHLER CO.

HAMILTON, OHIO

Hamilton Marine Engines



QUADRUPLE ENGINE

Quadruple Expansion Engines

The bed-plate is of heavy construction with eight cross girders for supporting the main bearings.

The main bearings are babbitted, with flat bottom shoes and separate caps. The lower shoes are fitted with removable half round shell.

The crank shaft is a forging built up in four interchangeable sections.

The crosshead guide is of the double slipper type, and the crosshead is a steel forging with slippers of cast iron lined with bearing metal and bolted to it.

The piston rods are steel forgings and are interchangeable.

The connecting rods are of forged steel and are of the standard marine type.

The throttle valve is of the poppet type and fitted with butterfly valve, both being operated from the starting platform.

The thrust shaft is of forged steel and the thrust bearing is of the horseshoe type.

Guards are fitted where required for protection.

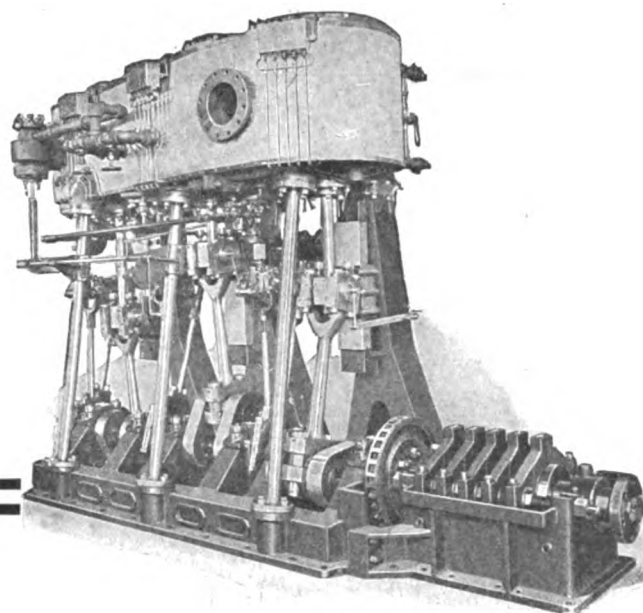
By-pass and drain piping is fitted to cylinders and is operated from the working platform.

TABLE OF DIMENSIONS
Quadruple Engines

Size of Engine	24½-36-53-78x51	24½-36-53-78x54	27½-40-59-86x54	30-43½-64-93x54
Dimension A	96½	96½	102	113
B	81	81	85½	93
C	35	35	37½	39½
D	35	35	37½	39½
E	38½	38½	38½	45
F	130	130	138½	145
G	56½	56½	50½	68½
H	56½	56½	50½	68½
I	163	163	172½	178½
J	334½	334½	363½	404
K	550	550	574½	638½
L	17½	17½	18½	19
M	35½	35½	37	38
N	56½	56½	50½	63
O	48½	48½	52½	54
P	35	35	36	36
Q	154	161½	163	165
R	86½	89½	89½	89½
S	33½	33½	34	34
T	75	75	76	78
U	95	95	98½	99½
V	74	74	76	76
W	201½	201½	209	211
X	114	120	120	120
Y	45	45	48	48
Size				
Steam Inlet	8	8	9	10
Exhaust	27	27	30	34
Air Pump	28x24	28x25½	30½x25½	33x25½
Bilge Pump	5x24	5x25½	6x25½	6x25½

THE HOOVEN, OWENS, RENTSCHLER CO.

HAMILTON, OHIO



THE Kearfott Organization includes a staff of engineers of long experience in selecting and designing standard machinery equipment for ships.

The selection of mechanical equipment for a vessel, small or large, cannot be made a haphazard matter if ultimate economy is sought. Equipment of various makes must be combined to form a unit which weighs as little as practicable and is as inexpensive as is possible, without the sacrifice of quality. Auxiliaries must be properly balanced in relation to the main propelling machinery.

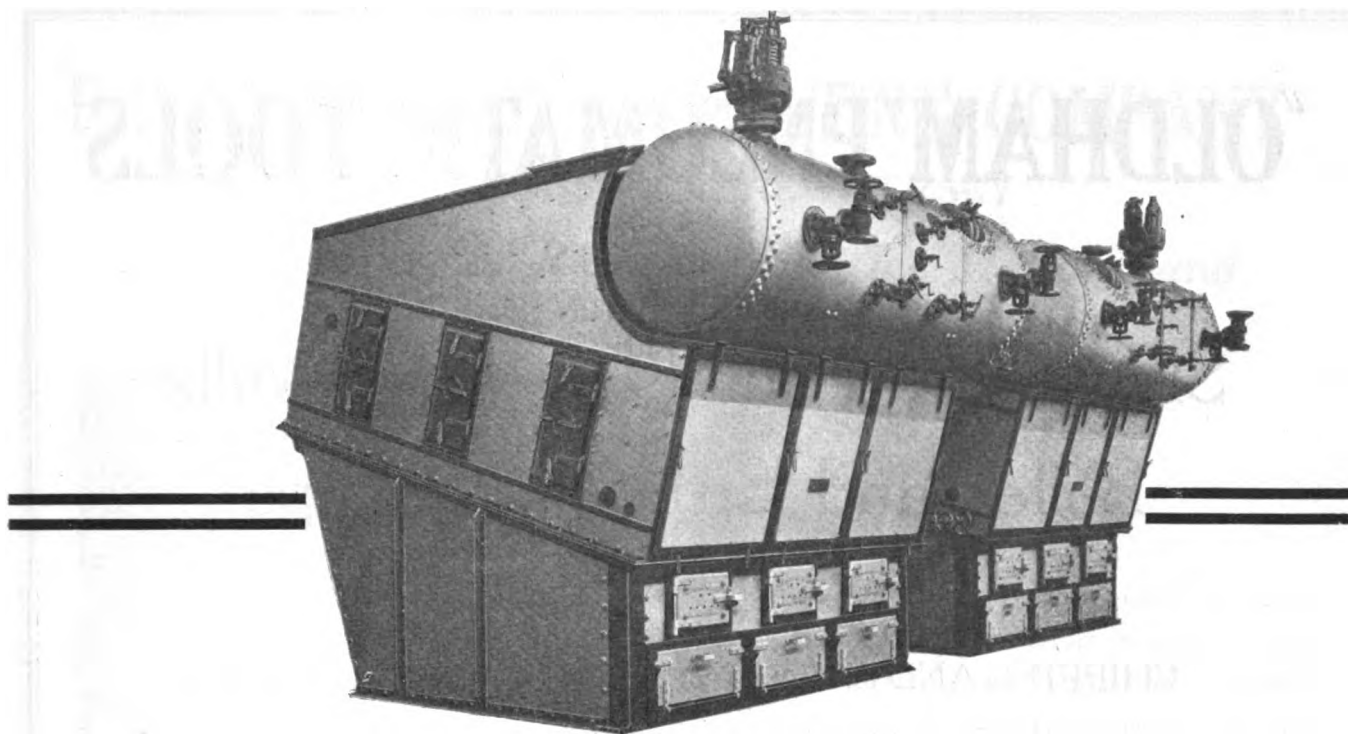
The most satisfactory means to assure the proper choice of machinery is to take advantage of the services of the Kearfott staff of engineering experts, whose advice is given gratuitously.

The Kearfott Organization is prepared to recommend complete marine machinery or to replace, repair or remodel existing equipment. It is the exclusive representative of many prominent manufacturers of marine equipment.

Kearfott possesses at all times latest detailed knowledge of the standard products of the country's shops. Before you design and have built any piece of machinery—make sure that Kearfott does not know of some standard equipment that will serve equally as well, and cost far less.

Asking Kearfott to quote involves no obligation, and will probably result in a large saving for you.

“Put it up to



THE ordinary way of making a boiler is familiar to you. Fit is largely a matter of heavy sledge and brawn; the boiler is subjected to severe strains before a drop of water enters it.

WARD Boilers are fitted together like an engine. The headers are machined to take the I beam stiffeners; the large drum is fitted to the front header; stay-bolts and nipple connections are entirely absent; the steel tubes are straight.

WARD Boilers are free from strain, and are consequently longer-lived. Add this feature to the Ward advantages of lower first cost, upkeep, weight, and greater capacity and economy, and you will have chosen the Ward as your boiler equipment.

Making a comparison of Scotch Marine and Water Tube Boilers for Marine use, in "International Marine Engineering," Mr. Jos. J. Nelis* recently wrote:

"Water tube boilers are approximately 10% more economical in fuel. The capacity of water tube boilers is so vastly in excess of Scotch boilers that no comparison is possible on this point."

The advantages of water tube boilers are especially marked in the WARD, noted for its economy and capacity. We heartily recommend the use of Ward Boilers wherever possible.

*Formerly Senior Marine Engineer, Boiler Unit, Engineering Section, U. S. Shipping Board, E. F. C.

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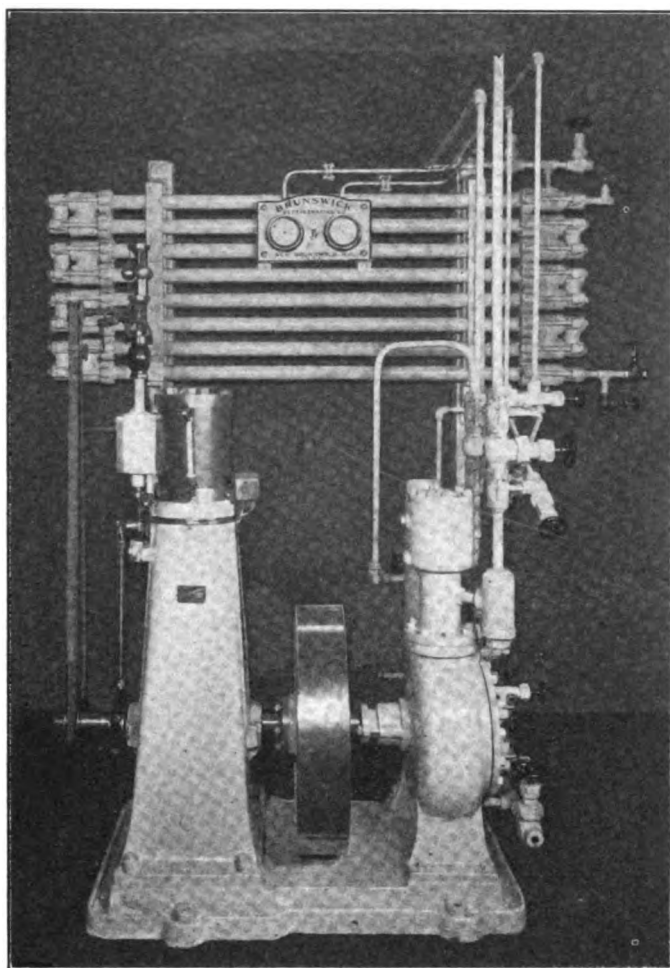
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*Manufacturers of Refrigerating, Ice Making, and
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Photograph Showing the Arrangement of a Complete
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COMplete plants may be furnished on short notice. The installation of a Brunswick refrigerating plant insures properly preserved food stuffs at all times, regardless of where the ship may be. A scuttle butt or water cooler may be installed, which will supply cold drinking water for the entire crew. Brunswick plants are easy to operate, require very little attention, and the steam consumption is so small that it is hardly noticeable. Parts for compressors kept in stock for immediate delivery.

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CONDENSER—The condenser is of the double pipe counter current type, easily cleaned and 100% efficient. Can be arranged so as to occupy very little space.

OIL SEPARATOR AND AMMONIA RECEIVER—Oil separator and ammonia receiver are made from double

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Complete estimates and plans furnished upon request.

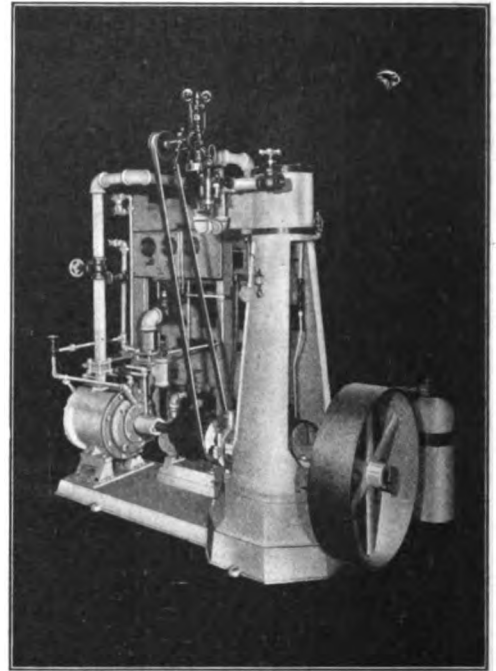
Address

BRUNSWICK REFRIGERATING COMPANY, New Brunswick, N. J.

Attention—Marine Department

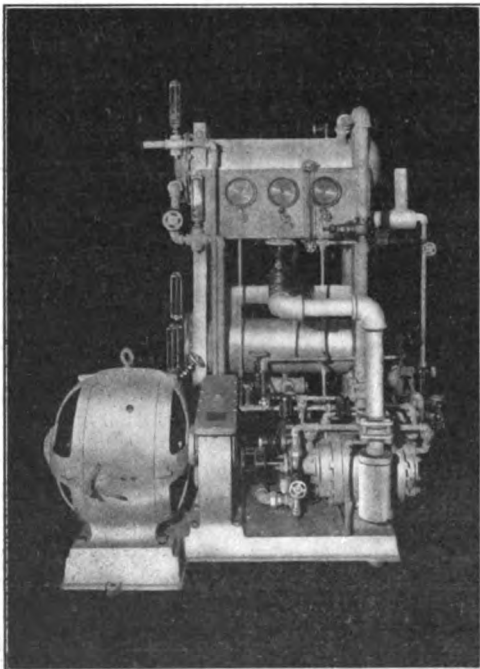
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STEAM DRIVEN MACHINES furnished as standard in one-, two- and three-ton sizes. Also built to order in one-half-ton size. Compressor, engine and pumps mounted on a common bed plate. Compressor direct connected to steam engine by belt and pin coupling. Pumps are gear driven.



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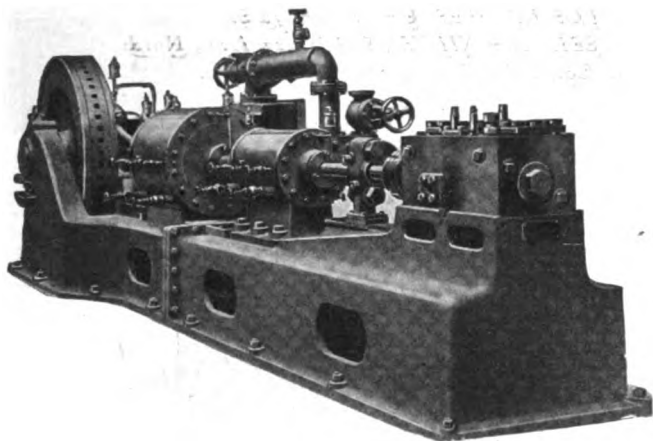
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FOR refrigerating duty on board ships Frick Equipment consists of Vertical Single-Acting Ammonia Compressors with Vertical Engine, Horizontal Double-Acting Ammonia Compressors with Uniflow Engine, CO₂ machines of the straight line tandem type, wherein the compressor is placed behind and in tandem to the steam cylinders of a tandem compound steam engine. Gas Condensers of the Double Pipe and

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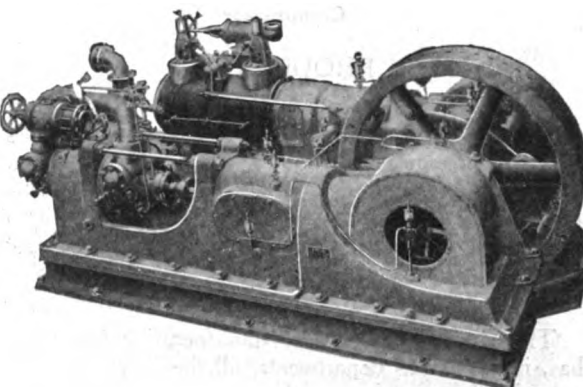
Frick Vertical Type
Ammonia Machine—Engine
Driven



Frick CO₂ Refrigerating Machine

durability and are adapted to any available power. Frick Machines do withstand the most severe usage and overloads with very low maintenance cost.

Frick Refrigerating Machines are built in units of size to suit requirements from one-half ton to 1000 tons. A statement of conditions addressed to our Engineering Department will enable us to submit an intelligent estimate and machine capacity required.



Frick Ammonia Machine with Uniflow Engine

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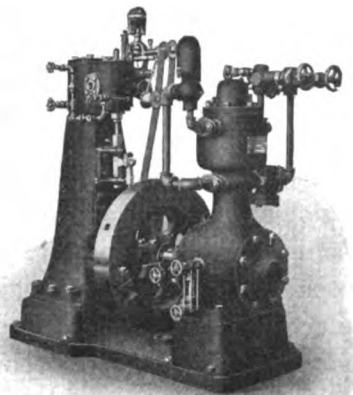
HOUSTON, TEXAS, 2201 Texas Ave.

NEW ORLEANS, LA., 619 Baronne St.

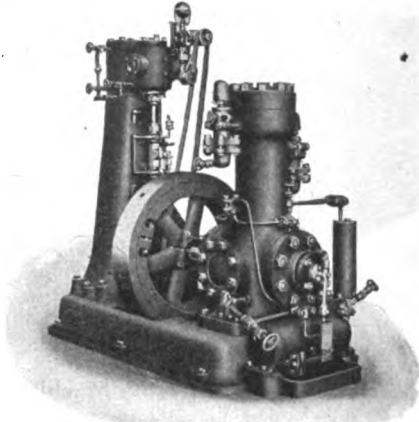
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Enclosed Single-Acting Ammonia
Compressor



Enclosed Single-Acting CO₂
Compressor

PRODUCTS

The York Manufacturing Company manufactures Ice Making and Refrigerating Machinery, including Gas Compressors, Ice Making Plants, Refrigerating Plants, Valves, Fittings, Condensers, Brine Coolers and all the accessories needed for a complete plant, operating with either Ammonia or CO₂ (Carbonic Anhydride) as a refrigerant.

FACILITIES

The Plant of the York Manufacturing Company has, in its various departments, all the facilities necessary for the manufacture, from raw material, of any article pertaining to the trade, and maintains an extensive Engineering and Designing Department for the purpose of rendering specifications for all problems in refrigeration.

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Economy in space is an important factor aboard ship. This problem has induced our Engineering Department to pay particular attention to compactness of design. Enclosed Compressors are particularly adapted for installation on board ships. The space required for York machines has been reduced to a minimum, and as all parts can be removed on the base of a compressor, no additional space is required for dissembling.

Either standard commercial enclosed type engines, with automatic lubrication, or open type engines of

conventional marine design throughout, are built for driving the compressors.

SIZES

York Enclosed Machines—Ammonia and CO₂—are built in sizes from one-quarter to thirty tons refrigerating capacity.

These Machines are made of the best materials obtainable, and in their construction special machinery is employed to secure accuracy. All parts are made to JIGS and TEMPLATES, so that interchangeability and absolute fit of repair parts are assured.

The York Manufacturing Company also specializes in Machines of the Horizontal Double-Acting Type in capacities of 20 tons and upward. These are especially suitable for the larger marine installations.

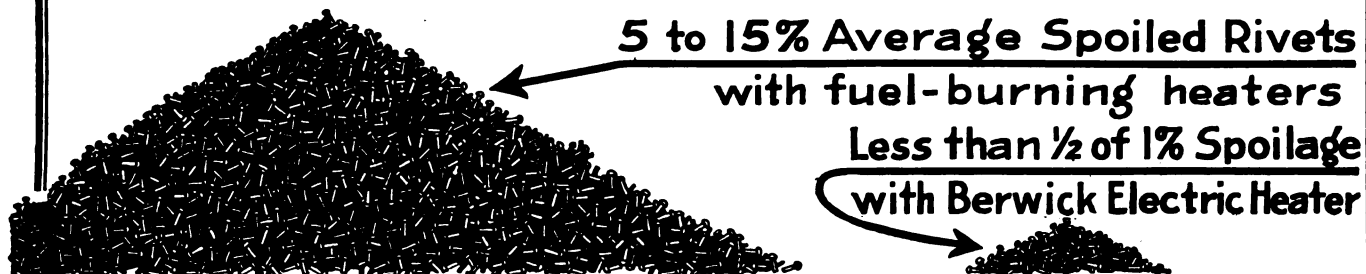
VALVES AND FITTINGS

York Ammonia and CO₂ valves and fittings are guaranteed to give satisfaction under all usual working pressures.

SERVICE

All York Branches carry in stock a complete line of Valves, Fittings and Supplies for ice making and refrigerating plants, also a line of Enclosed Machines. This assures every owner of a York Plant that he will be able at all times to secure all necessary supplies and additional equipment for his plant with the utmost promptness.

How many spoiled rivets go into *your* scrap heap?



A leading trade paper, after investigating throughout the country, places loss of rivets in average plants at approximately 15 per cent. Most of the loss is due to burning and scaling (or oxidation) in fuel-burning heaters.

The Berwick Electric Heater reduces this loss to less than $\frac{1}{2}$ of 1 per cent. Every rivet is in plain view while being heated, and inspection is not hampered by flames, smoke, or intense heat. Only gross carelessness can permit any loss whatever from overheating.

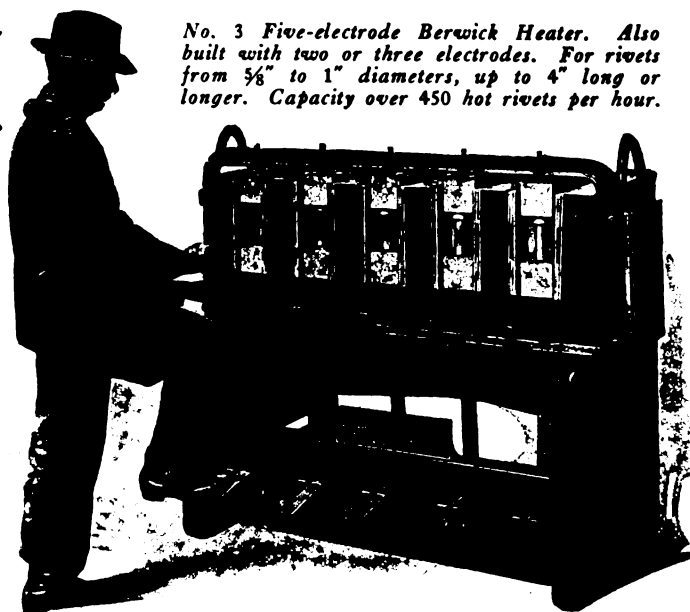
The average loss with fuel-burning heaters, figuring rivets at \$4 delivered, is at least 40 cents per hundred pounds. Practical elimination of this waste is only one of the savings effected by—

BERWICK ELECTRIC RIVET HEATER K

Note these features:

- Low operating cost. Less than 20 kilowatt-hours per hundred pounds of rivets heated.
- No smoke, gas, dirt, or excessive heat.
- Fire risk eliminated.
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- Time-saving portability. Heater can be placed close to work. Often eliminates sticker-boy.
- Power used only when hot rivets are needed.
- Uniform heating. Radiation from center of rivet outward.
- Safe. Simple to operate. No complicated wearing parts. Negligible maintenance cost.

Send for catalogue. Mention size of rivets used, capacity required, and alternating current conditions.



No. 3 Five-electrode Berwick Heater. Also built with two or three electrodes. For rivets from $\frac{3}{8}$ " to 1" diameters, up to 4" long or longer. Capacity over 450 hot rivets per hour.

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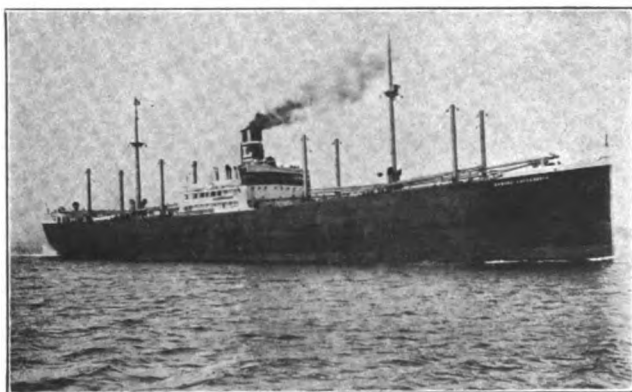
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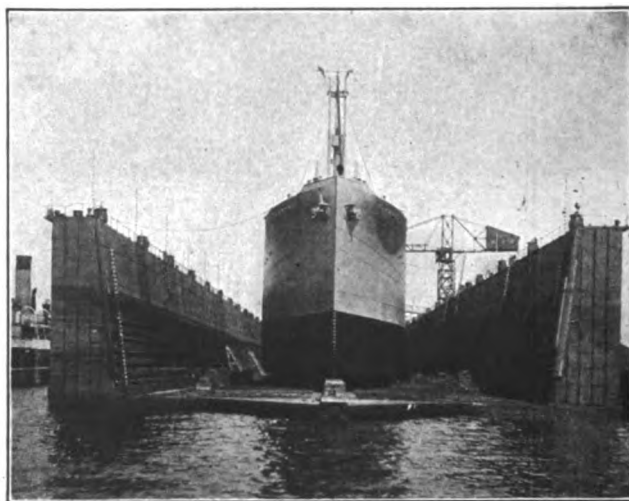
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PROMPTLY EXECUTED



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**MOBILE, ALABAMA,
U. S. A.**

Cable Address "Pajones, Mobile"
All leading codes used

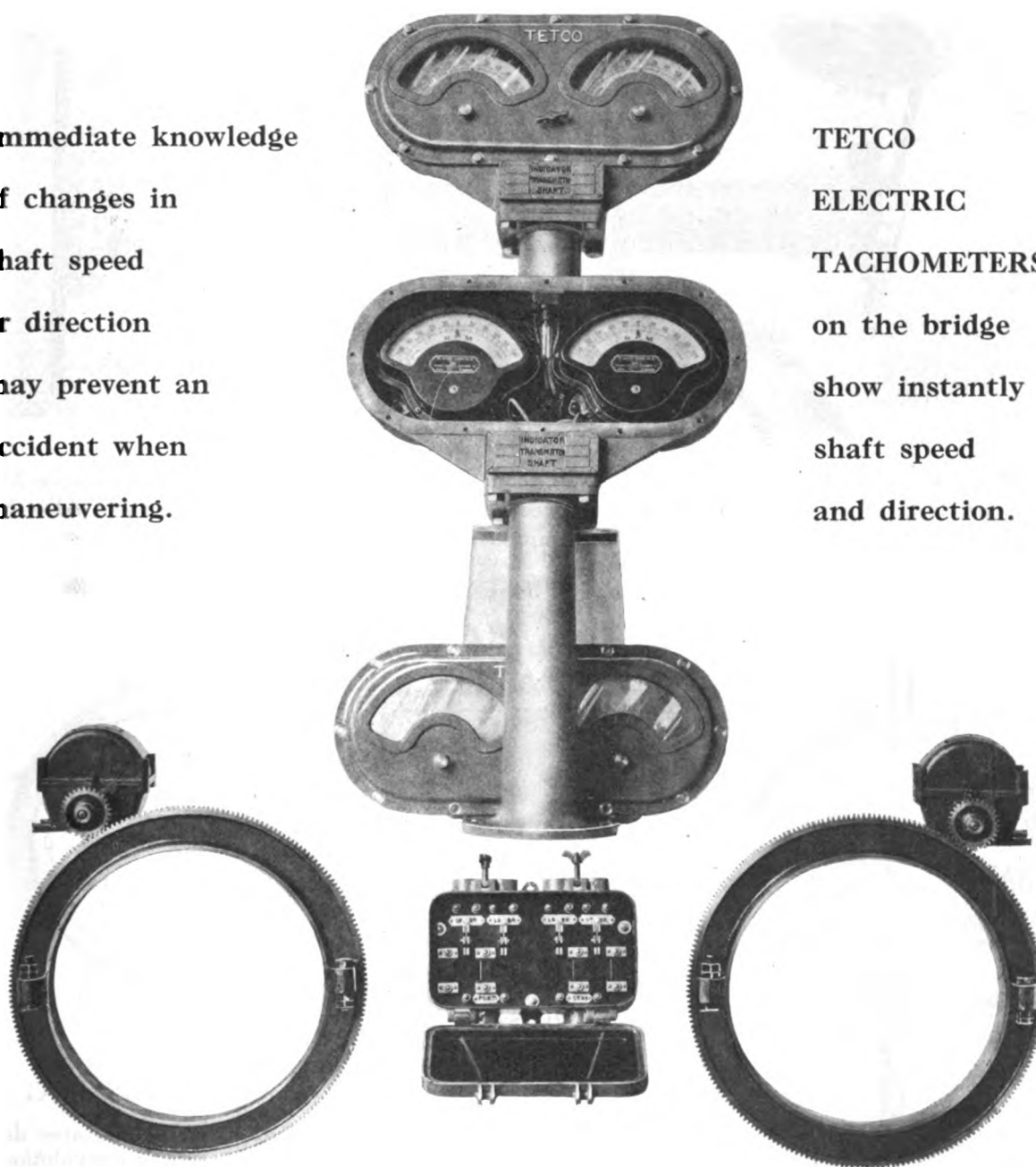
St. Louis Office: 1527 Pierce Bldg.

IRVING H. HELLER, Manager

AHEAD OR ASTERN?

**Immediate knowledge
of changes in
shaft speed
or direction
may prevent an
accident when
maneuvering.**

**TETCO
ELECTRIC
TACHOMETERS
on the bridge
show instantly
shaft speed
and direction.**



AS ACCIDENT PREVENTORS, TETCOS are worth many times their cost. The prevention of a single minor accident will more than pay for a complete installation.

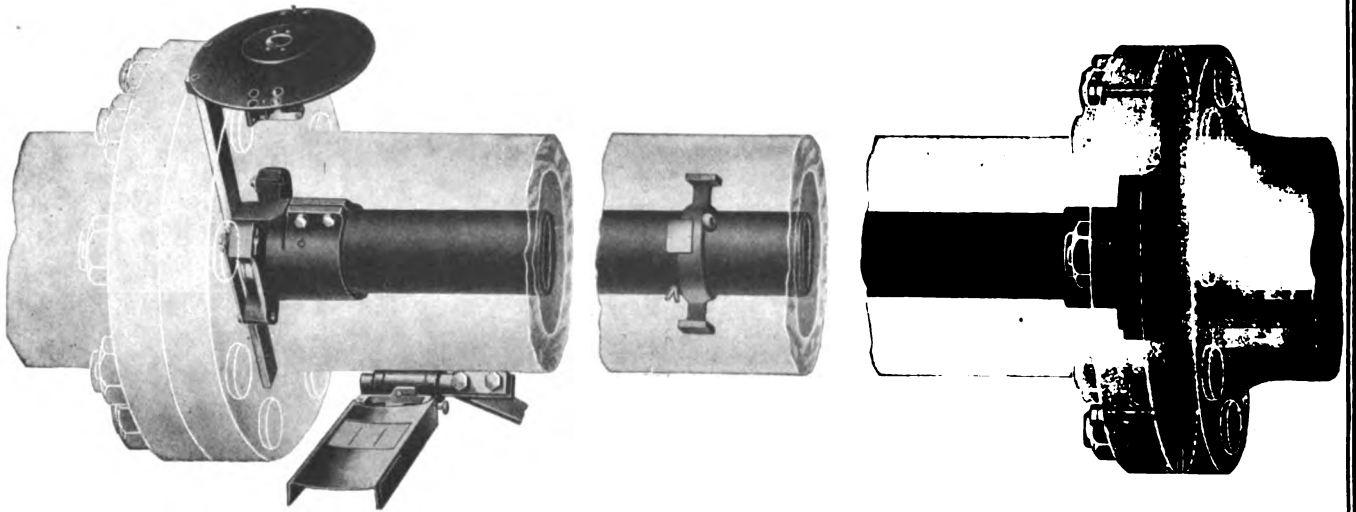
KNOWING THAT SIGNALS HAVE BEEN OBEYED promptly and correctly will eliminate a large part of the difficulty of navigating in close quarters.

KNOTS PER HOUR can be read directly if desired. The satisfaction of knowing your speed at all times is in itself worth the cost.

Write to us for Complete Information.

THE ELECTRIC TACHOMETER CORP'N
Philadelphia, Penna.

The Gary-Cummings Torsion Meter



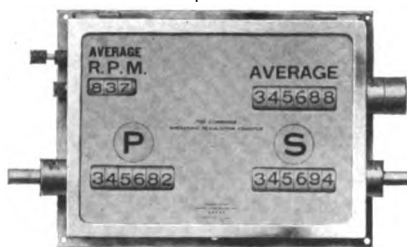
Phantom view looking down on typical shaft section in which the Gary-Cummings Torsion Meter is installed. From the linear distance between the two lines shown on the card in holder the horsepower transmitted is easily calculated.

OVER 300 INSTALLATIONS



**MECHANICAL TELE-
GRAPHS**

Over 300 Installations



**CUMMINGS
2-SHAFT AVERAGING
COUNTER**

With R.P.M. Attachment
Made also for three and four
shaft ships

Over 600 Installations



CUMMINGS LOG

Automatically indicates dis-
tance steamed by revolutions
of propellers.

Over 1,000 Installations

Complete Catalogue Upon Request

CUMMINGS SHIP INSTRUMENT WORKS

10 HIGH STREET,

BOSTON, U. S. A.

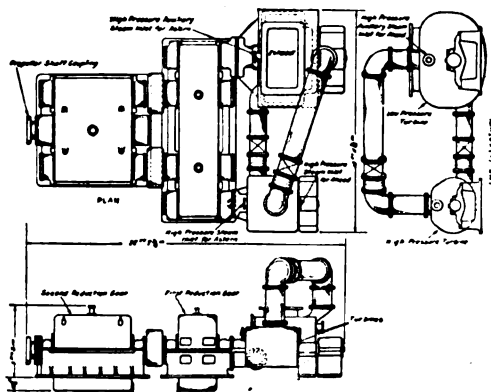
PARSONS MARINE STEAM TURBINES

**GEARED TURBINES OF SINGLE
REDUCTION OR DOUBLE REDUCTION
DESIGN FOR ALL CLASSES OF VESSELS**

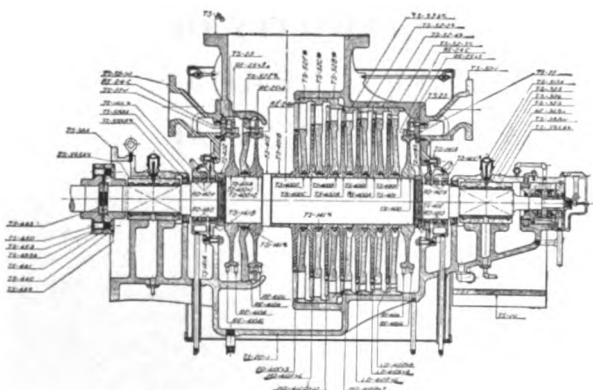
**DURABILITY AND RELIABILITY OF
PARSONS GEARS FULLY DEMON-
STRATED; MERCANTILE AND NAVAL
VESSELS HAVE BEEN IN COMMISSION
UPWARDS OF TEN YEARS**

**WE SPECIALIZE IN OBTAINING HIGH
ECONOMIES OF STEAM CONSUMPTION
UNDER SERVICE CONDITIONS**

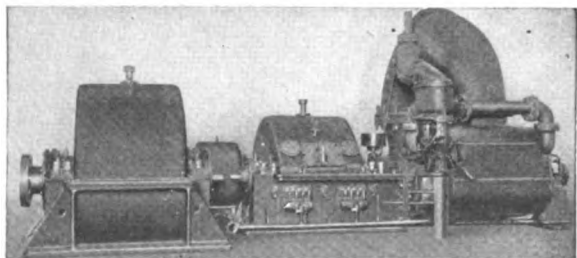
**THE PARSONS MARINE STEAM TURBINE CO., LTD.
2 R E C T O R S T R E E T
NEW YORK CITY**



De Laval High and Low-Pressure Marine Turbine with Double-Reduction Gear Having Two Intermediate Pinions; 3,000 H. P., 90 R. P. M.



De Laval Marine Turbine. Each Part Is Made to Limit Gages, and Is Stamped with an Identifying Symbol, as Indicated.



De Laval Marine Steam Turbine with Double-Reduction Gears; 1,500 H. P., 90 R. P. M.

DE LAVAL Turbines and Gears

have been developed and standardized through a period of 25 years. The De Laval Marine Steam Turbine is of the multi-stage type and consists of a series of impulse wheels, each running in a separate compartment. The expansion of the steam is accomplished entirely in the nozzles. Since the steam pressure is the same on both sides of each wheel, theoretically no axial thrust is transmitted to the shaft. Likewise there is no leakage over the tips of the buckets or vanes, making close clearances unnecessary. The lubrication is automatic. All parts are accessible upon lifting the casing cover.

The first De Laval Double-helical Speed-reducing Gear was introduced in 1889. Since that time many hundreds of gears have been produced which are now in successful operation. Correct design, coupled with specially developed methods and a high degree of accuracy in cutting the teeth, insures their satisfactory mechanical operation and silent running. The almost entire absence of wear is proof of their high efficiency in transmitting power

Ask for Catalog M-79

DE LAVAL STEAM TURBINE CO.

TRENTON, NEW JERSEY

DE LAVAL

Any Requirements

in power and speed can be met with De Laval Geared Turbines. Where the conditions demand a ratio of reduction not over 1 to 24, a single reduction is supplied. There may be either one or two pinions. With two pinions, the turbine is divided into high and low pressure sections; both sections can operate on high pressure steam, if necessary, giving a duplicate power plant.

Where the necessary speed reduction requires it, a double gear reduction is used.

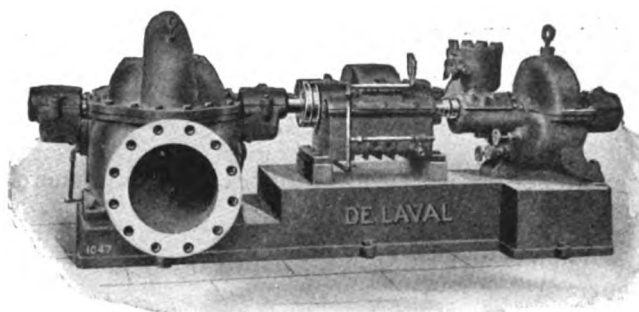
Other De Laval Products

Steam-turbine-driven auxiliaries are manufactured by the De Laval Steam Turbine Co., as follows: Condenser Circulating Pumps, Centrifugal Boiler Feed Pumps, Bilge and Cargo Pumps, Fire Pumps and Turbo-Generators.

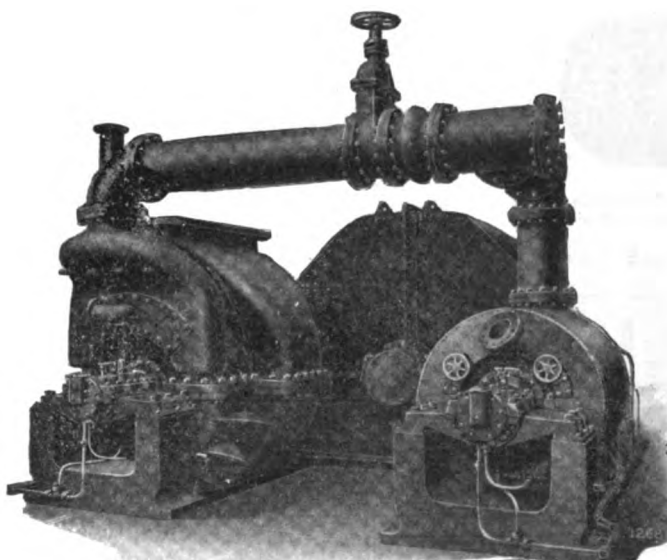
Ask for Catalog M-79



De Laval Turbine-driven
Boiler - Feed Pump,
Capacity 3,000 H. P.



De Laval Geared Turbine-Driven Centrifugal
Condenser Circulating Pump.



De Laval High and Low Pressure Compound Single-
Geared Unit, 2,500 H. P., 110 R. P. M.



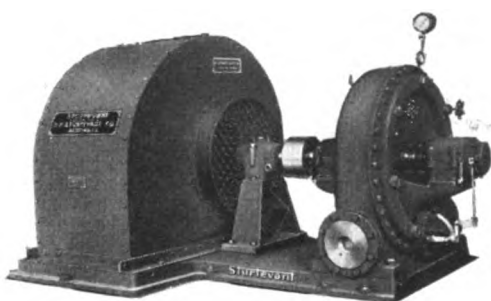
DE LAVAL STEAM TURBINE CO.

TRENTON, NEW JERSEY



FOR the last forty years forced or induced draft has been general practice in ship work, both for the U. S. Navy and Merchant Marine. In the early days when we began to build up a navy, Sturtevant fans were more or less generally installed in all the Navy ships, and they have been in the majority right up to the present day. Ventilation fans and ventilation heaters have also been used considerably in ship work, and we are very well represented in these lines, both in the Navy and in the Merchant Marine.

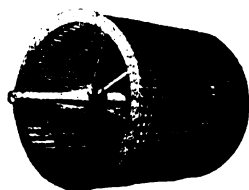
FORCED AND INDUCED DRAFT



Sturtevant Turbine and Forced Draft Fan with Emergency Stop Governor. Used in Battleships and Auxiliary Ships of the U. S. Navy. Vertical Type Turbines Are Used on Destroyers.

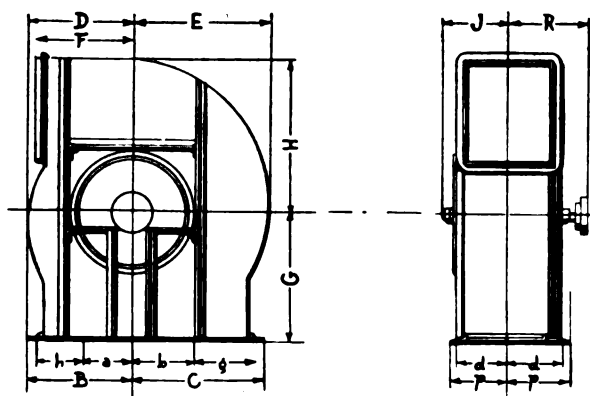
All Sturtevant Forced Draft Fans are specially designed for their work. To safely meet the demands of the service they are built exceedingly strong and heavy.

The high speeds at which Sturtevant Turbine driven Mechanical Draft Fans may be successfully operated makes possible the use of a small steam turbine. This turbine, operating at high speed, at which it is most efficient,



Double Width Multivane Type Forced Draft Wheel

is a very small consumer of steam. There is no oil in the exhaust from the steam turbine, and this fact commends this type of unit especially for Marine Work. These forced



SIZES AND PRINCIPAL DIMENSIONS OF STURTEVANT DESIGN STEEL PLATE FORCE DRAFT FAN
STEEL PLATE, RIGHT HAND, TOP HORIZONTAL DISCHARGE, FULL HOUSING, SINGLE WIDTH, DOUBLE INLET

Size of Fan	B	C	D	E	F	G	H	J	P	r	a	b	d	g	h
80	31	31	31	39	30 1/2	36 1/2	43	20 3/8	15	25 1/2	24 1/2	24 1/2	13 1/2	...	...
90	34 1/2	34 1/2	34	44	34 1/2	45	49	22 1/2	17	27 1/2	25	25	15 1/2	8	8
100	35 1/2	35 1/2	37	49	36 1/8	50	55	24 1/2	19	29 1/2	27	27	17 1/2	7	7
110	40 1/2	40 1/2	40 1/2	53 1/2	40 1/2	50 1/2	60	26 3/4	22	32	32	32	20	6 1/2	6 1/2
120	46	46	44	58	41 1/2	55	65	30 3/8	25 1/2	36	34 1/2	34 1/2	23 1/2	9 1/4	9 1/4
140	49	49	50	68	45 1/2	64	77	33 5/8	28 1/2	40	38 1/2	38 1/2	26 1/4	8 1/4	8 1/4

draft fans are applicable, not only to Marine boilers, but to any installation where an exceptionally compact unit is desired.

Engine driven fans are used very largely in connection with forced or induced draft work, primarily because of their flexibility and ease of control.

The possibility of using the exhaust steam for feed water heaters gives engines or turbines preference over motor drive in mechanical draft installations.

On board ship and more particularly in any work where the requirements of forced draft installations are unusually severe, and only apparatus of proved dependability can be installed, it is significant that Sturtevant Forced Draft Fans are used more than any other make on United States Battleships, Cruisers, Destroyers and in the U. S. Merchant Marine.

The fan wheels are of special design, rigidly constructed of heavy steel plate and very carefully balanced. The fan casing is built of heavy steel plate rigidly braced. The shafts are accurately turned and ground to an exact size and run in large, thoroughly lubricated bearings. Every detail in their design and construction is aimed at high operating efficiency and rigidity.

To supply adequately all needs a complete line of forced draft fans has been developed. This enables us to meet any condition of speed, volume or pressure. Our engineers will gladly advise and co-operate with you.

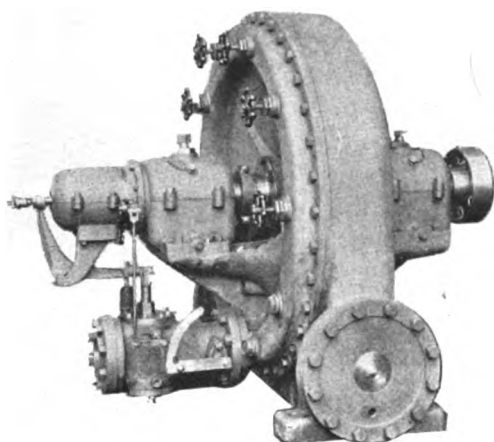


Steel Plate Type Forced Draft Wheel



Engine Driven Forced Draft Fan Used to a Great Extent with the Howden System of Forced Draft

TURBINES—HEATERS—GENERATING SETS



STEAM TURBINE

Sturtevant Steam Turbines are of the single stage multi-velocity type. By suitable combinations of steam pressure, size of rotor, nozzle capacity, and rotative speed, a range of from one to three hundred horse power is obtainable. The refinements in design and construction account for their superiority in power, strength, operating economy and reliable performance. Built with solid rotors having buckets milled into the rim by our own patented process. Their individually controlled nozzles with integral reverse buckets insure the most efficient absorption



MARINE HEATER

of the steam velocity. Unsurpassed in steam regulation and in protection against overspeed.

Sturtevant Marine Heaters are supplied with solid bases or sectional bases, and in the latter case each section may be individually controlled. This gives flexibility and a wide range of temperatures. Still greater temperature control is made possible by the use of a damper or by-pass. Air may be obtained

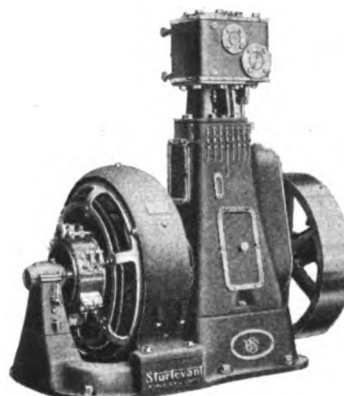
all cold, all hot, or may be mixed to secure any desired final temperature.

For Navy use these heaters are made of seamless drawn steel tubes expanded into steel headers. For Merchant Marine use they are made of wrought iron pipe screwed into headers.

The heaters are made with casings that are both air-tight and water-tight, so that they may be placed either on deck or inside. Special attention is given to secure the foundation and lower part of the heater absolutely water-tight.

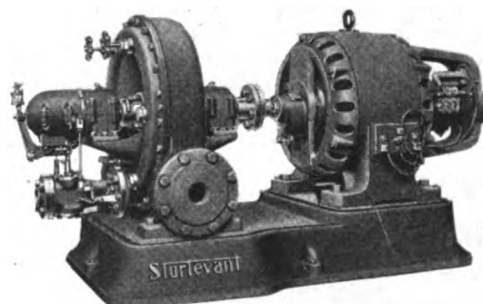
The finish of the heaters is specially designed to withstand the corrosive action of salt water and air. These sets will stand any steam pressure up to 80 pounds, and are finished with or without fans as desired.

Simplicity is evidenced throughout the construction of both the engine driven and turbine driven generating sets. The V. S. 7 engine driven generating is mounted on a substantial sub-base permitting movement from one place to another. It is designed to operate both at normal load and 25 per cent. overload. It is further designed to carry 50 per cent. overload momentarily without injury.



ENGINE GENERATING SET

The turbine driven generating sets are very desirable power and lighting units, many of which are being used on the U. S. Navy ships and mine sweepers. The compactness and small size of these sets recommends them for shipboard, where space is usually a very important consideration.



TURBINE GENERATING SET

B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS.

or one of the following 25 branch offices in the United States and Canada

Atlanta, Ga.	306 Walton Bldg.	Detroit, Mich.	406 Marquette Bldg.	Rochester, N. Y.	1108 Granite Bldg.
Boston, Mass.	555 John Hancock Bldg.	Hartford, Conn.	36 Pearl St.	St. Louis, Mo.	2086 Ry. Exchange Bldg.
Buffalo, N. Y.	101 Bedford Av., Nye Pk.	Kansas City, Mo.	412 Reliance Bldg.	Salt Lake City, Utah	Walker Bank Bldg.
Chicago, Ill.	530 S. Clinton St.	Los Angeles, Cal.	411 Hollingsworth Bldg.	San Francisco, Cal.	759 Monadnock Bldg.
Cincinnati, O.	604 Provident Bank Bldg.	Minneapolis, Minn.	804 Metrop. Life Bldg.	Seattle, Wash.	1134 Henry Bldg.
Cleveland, O.	330 Guardian Bldg.	New York, N. Y.	52 Vanderbilt Ave.	Washington, D. C.	1006 Loan & Trust Bldg.
Dallas, Tex.	3411 Knight St.	Philadelphia, Pa.	135 N. 3rd St.	Toronto.	210 Lumsden Bldg.
		Pittsburgh, Pa.	711 Park Bldg.		

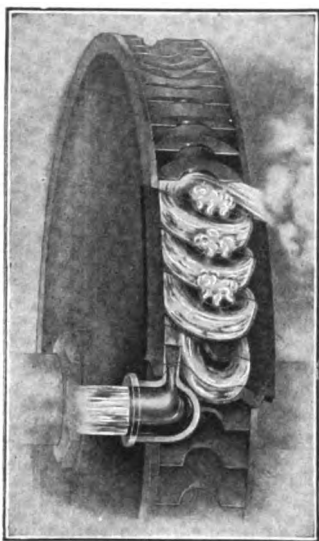
Winnipeg, Manitoba: Reliance Equipment Co., Ltd., 914 Somerset Block.

Galt, Ontario

Montreal, 404 Birks Bldg.

Principle of Operation of Terry Turbine

The Terry principle of operation makes use of but a single solid wheel with internal protected integral buckets. The steam enters an expanding nozzle, as shown in the illustration below, from which it issues at high velocity, striking the side of the wheel bucket, in which its direction is reversed 180 degrees. It is then caught by the reversing chamber and returned again and again to the wheel until all of the available energy is exhausted. As bucket erosion does not alter the angle at which steam enters or leaves the wheel, this type of turbine will maintain its original efficiency for a great many years.



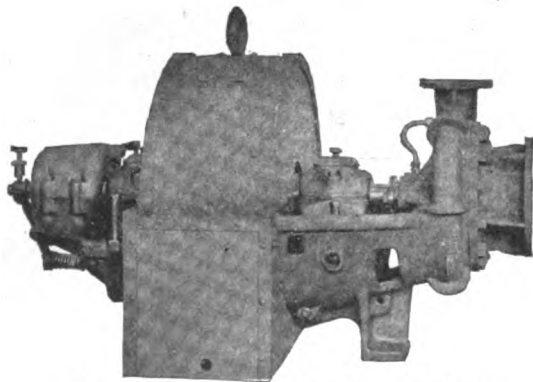
Action of Steam in Terry Wheel

Advantages of Terry Turbine Drive

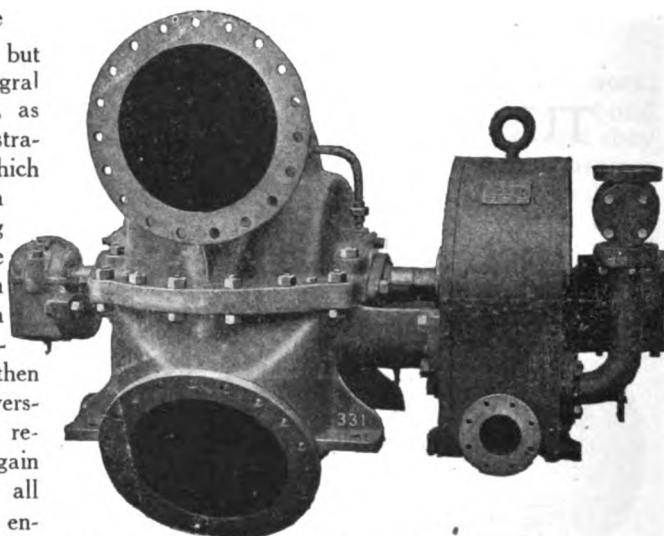
In marine service particularly, dependability, simplicity and light but rugged construction are prime requisites for satisfactory and efficient operation. The many distinctive features and advantages of Terry turbines assure their meeting these requirements to an exceptional degree.

Alignment is maintained by sturdy design of casing and supporting feet, low location of pipe connections, small temperature changes as the casing is subject to exhaust pressures and temperatures only, and operating speeds well below critical speeds.

Accessibility is obtained by the horizontally split casing, bearing, glands, etc., permitting inspection and repair without disturbing steam or exhaust connections which are located on the lower half. Economical operation at partial loads is obtained by individual nozzle control. The low upkeep cost of Terry Turbines has been proved by their records both at land and sea. Many Terrys have operated for years without one



3 to 25 H. P. Turbo Condensate Pump



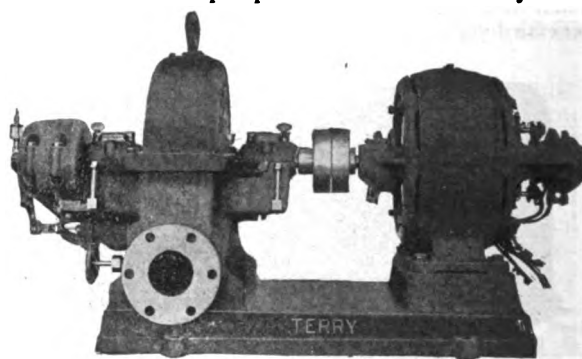
25 to 75 H. P. Turbo Condenser Circulating Pump Used on All Destroyers of the United States Navy

cent being spent for repairs or upkeep. With reasonable attention to lubrication there is practically no deteriorating wear. The few parts which are subject to wear are made interchangeable and kept in stock for immediate shipment.

Wide Applications in Marine Service

Because of its intrinsic values the Terry Turbine is admirably adapted for a variety of marine services.

For condensate pump drive. Built in many sizes



Terry Turbo Generator

especially for marine work. A simple, rugged, two-bearing unit with three-point support, with all parts readily accessible.

For lighting and power on ships and shipyards. Terry Turbo Generators are built in sizes up to 750 kw. Geared or direct connected, A. C. or D. C.

The special advantages are: It occupies small space, is free from vibration permitting installation on light foundations, requires very little attention, it does not require packing, and uses very little oil. High superheat is beneficial to its operation and its exhaust steam is clean.

For condenser circulation. Built in all sizes required for marine work. Geared or direct connected.

Other Uses: Terry turbine drive is also adaptable to other marine services, such as ballast pumps, dredging pumps, blowers for forced draft or ventilation, etc.

THE TERRY STEAM TURBINE CO.
HARTFORD, CONN.

ASHTON QUALITY PRODUCTS

Pop Safety Valves—Saturated & Superheated Steam Pressures

Relief Valves—Steam, Air, Gas and Liquid Pressures

Pressure & Vacuum Gages—Indicating and Recording

Altitude Gages

Whistles

Alarm Gages

Pressure & Vacuum Testing Pumps

Approved by the United States Board of Supervising Inspectors of Steam Vessels; Bureau of Steam Engineering; United States Navy, and by Lloyds Register.

Ashton products have, for the past fifty years, been the standard for all discriminating buyers, and are specified by the leading Marine Architects and Engineers because of their mechanical superiority and accuracy.

Make Ashton Your Standard

ASHTON MARINE POP SAFETY VALVES

have successfully controlled all pressures. Manufactured of the highest grade material, with non-corrosive 45° or flat seats; bottom and top guide wing valves; Ashton patented blow-back head and never-failing outside pop regulator; hand-wound springs and cam lever, or rocker shaft, lifting apparatus. Manufactured in single or duplex type; enclosed or outside spring for saturated or superheated steam.



No. 79

ASHTON DEAD-WEIGHT PRESSURE GAGE TESTERS

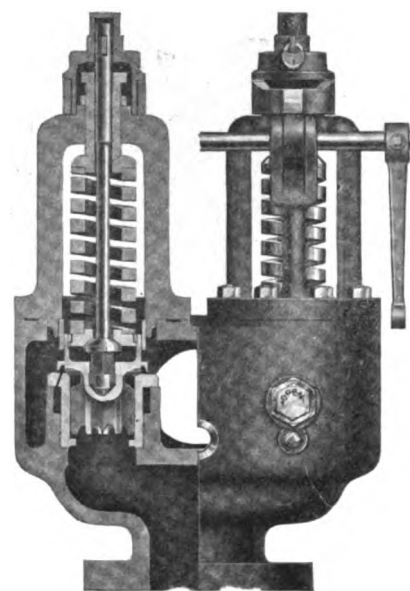
are the standard of accuracy, easily transported, and fully as efficient as a mercury column. The testing or recalibration of pressure gages can be accomplished with but one-quarter the number of weights that are required by the ordinary tester. This is made possible by adjustment of the ASHTON PATENTED CONTROL VALVES on body of cylinder. Gage users cannot afford to be without this useful instrument.



No. 52

ASHTON IMPROVED PRESSURE GAGES

for accuracy and durability have no equal. Manufactured for all pressures of the highest grade material, with non-corrosive movements; seamless drawn expansion tubes, hand graduated dials accurately indicating the pressure on each individual expansion tube. For the marine service we recommend the No. 52 double spring pressure gage.



No. 16A

THE ASHTON VALVE CO.

161 First St., Cambridge, 41, Mass.

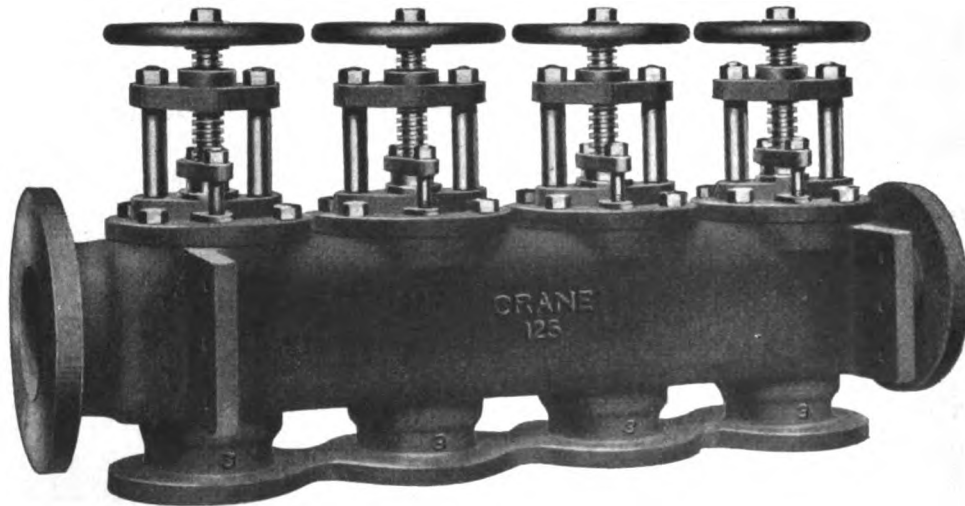
NEW YORK
137 Liberty St.

CHICAGO
318 W. Washington St.

SAN FRANCISCO
503 Mission St.

CRANE

*We can supply any valve or
fitting for ship use.*



CRANE **Manifold Valves** For Marine Service

We are in position to make Manifold Valves
with any number and size of openings.

Send us a sketch showing your requirements.
The large variety of patterns we have may
include just such a valve as you may require,
or possibly a slight alteration of one of our
patterns will be all that is necessary.

SALES OFFICES, WAREHOUSES AND SHOWROOMS:

BOSTON	BALTIMORE	MUSKOGEE
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FOUNDED BY R. T. CRANE, 1888

CRANE CO.
836 S. MICHIGAN AVE.
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GRAND RAPIDS	ABERDEEN	OGDEN
DAVENPORT	GREAT FALLS	SACRAMENTO
DES MOINES	BILLINGS	OAKLAND
OMAHA	SPOKANE	SAN FRANCISCO
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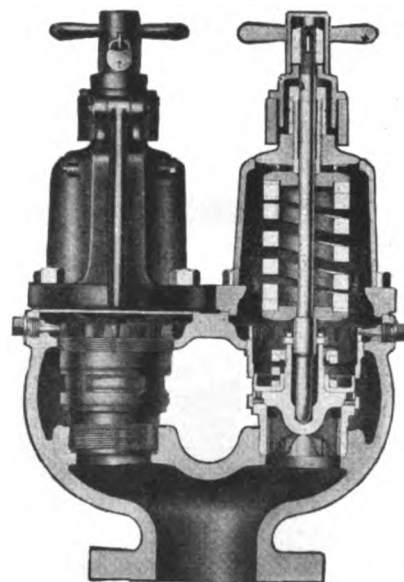
CRANE

Pop Safety and Relief Valves

For Marine Service

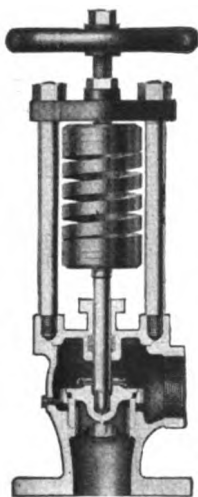
Our Duplex Pop Safety Valves, made with ferrosteel or cast steel body, meet all existing requirements of the Board of Supervising Inspectors, Department of Commerce, The American Bureau of Shipping, and Lloyd's Register.

We can also furnish other types, such as single valves and twin valves on Y base.



NO. 1119 1/2 DUPLEX

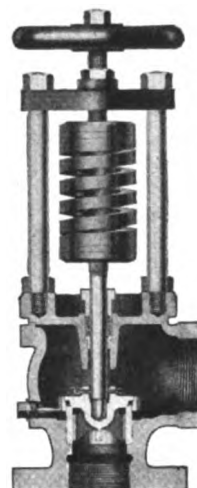
Pop Safety Valve



NO. 1137



NO. 1127



NO. 1114

Here we show a few of the many relief valves we make for salt or fresh water and steam relief on shipboard.

CRANE

CRANE

STANDARD—IRON BODY

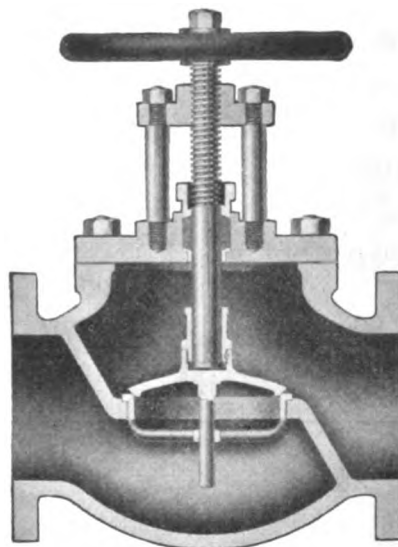
Globe, Angle and Cross Valves

For Marine Service



NO. 4163 STANDARD

Cross Stop Valve



NO. 4351 STANDARD

Globe Stop Valve

*For Water Lines, Salt and Fresh
Exhaust Steam Lines
Oil Lines*

The Marine Engineer will be interested in these features:

- Composition gland
- Crosshead type yoke
- Full area through body
- Composition bushings around stem
- Made in the Stop or Screw Down Check pattern

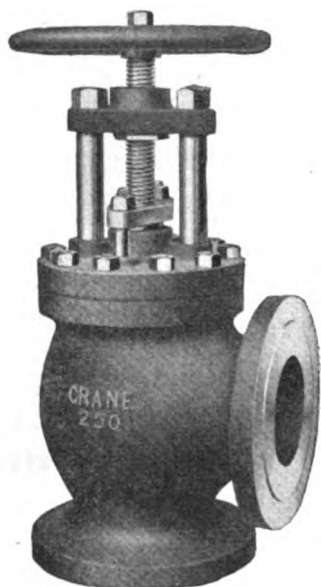
CRANE

CRANE

EXTRA HEAVY

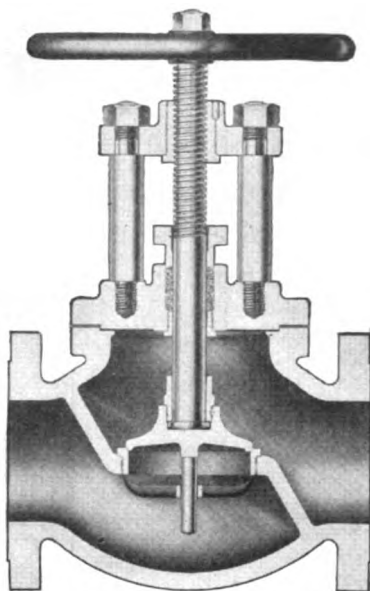
Globe, Angle and Cross Valves

For Marine Service



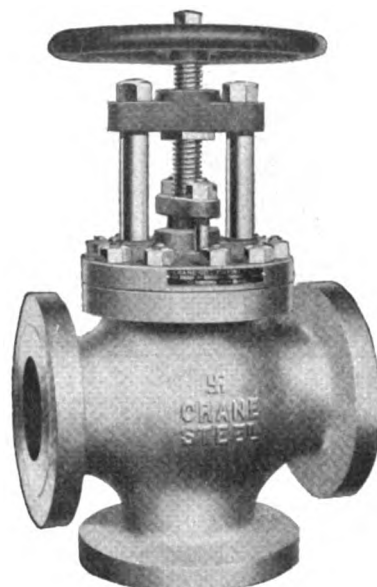
NO. 4623-E

Extra Heavy, Ferrostee
Angle Valve



NO. 4621-A

Extra Heavy, Cast Steel
Globe Valve



NO. 4625-A

Extra Heavy, Cast Steel
Cross Valve

We manufacture a complete line of Globe, Angle, and Cross Valves for high pressure steam service; cast steel for superheated steam; ferrostee for saturated steam.

CRANE

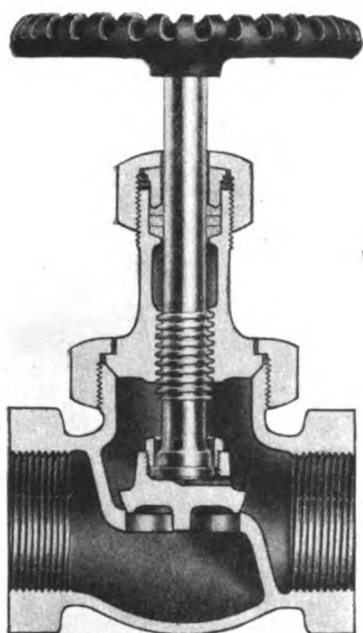
CRANE

EXTRA HEAVY—BRASS

Globe, Angle and Cross Valves

Stop and Screw Down Check Types

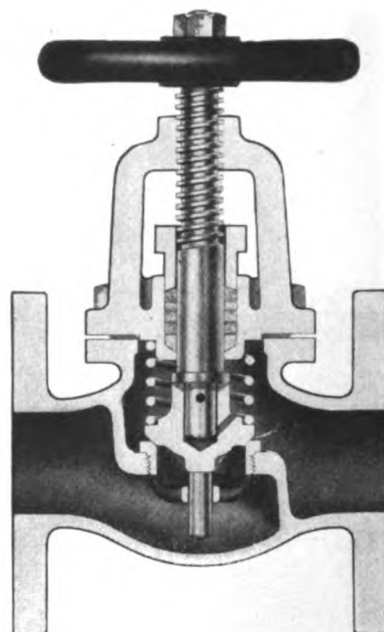
For Marine Service



No. 82-E

EXTRA HEAVY, UNION BONNET
Globe Stop Valve

Regrinding
Brass gland in stuffing box
Can be packed while under pressure



No. 4187-E

EXTRA HEAVY, BOLTED BONNET
Globe Screw Down Check Valve

Renewable seat
Hard metal seat and disc
Can be packed while under pressure
Small size with cast yoke; large size
with steel crosshead.

These valves are made to comply with all existing marine requirements

We also manufacture a line of these valves, both union and bolted bonnet, in medium pattern for lower pressures

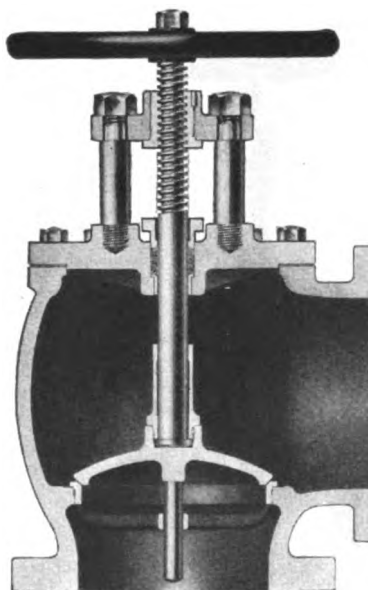
CRANE

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Sea Valves for Marine Service

**Iron Body
Main Injection Valve**
No. 4347

This valve is specially designed to meet marine requirements for main injection service, having a heavy inlet flange and neck.



**Iron Body
Overboard Discharge Valve**
No. 4379

This valve is made with a weight to keep it closed, and a latch to hold it open.

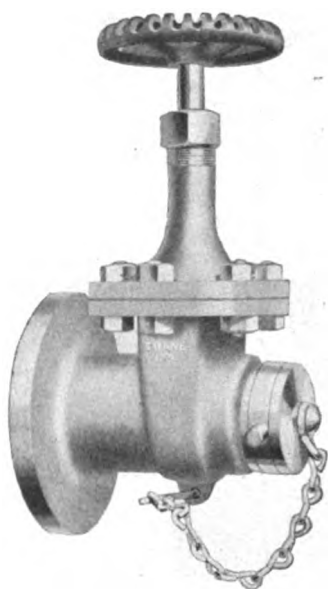
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Standard and Extra Heavy

Composition Gate Valves

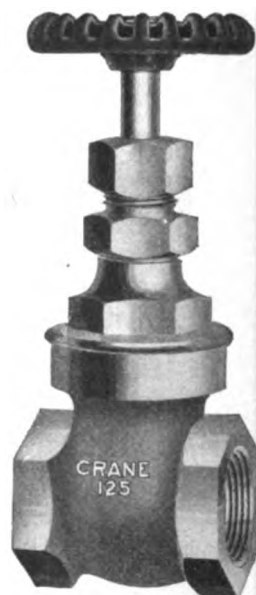
For Marine Service



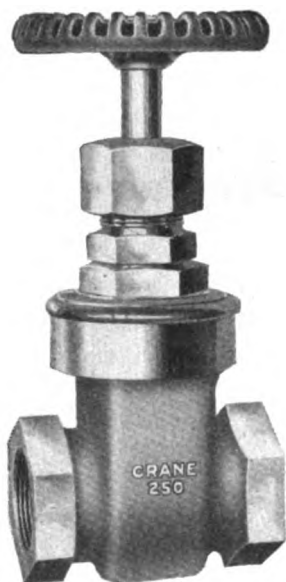
No. 4451

STANDARD

Made with gland, non-rising stem, and wedge gate, for working pressures up to 150 pounds. May be packed while under pressure.



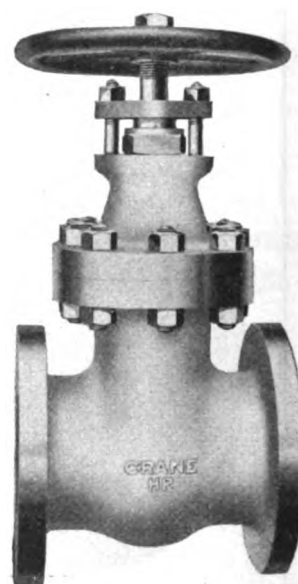
No. 437



No. 66-E

EXTRA HEAVY

Made with gland, non-rising stem, and wedge gate, for working pressures up to 250 pounds. May be packed while under pressure.

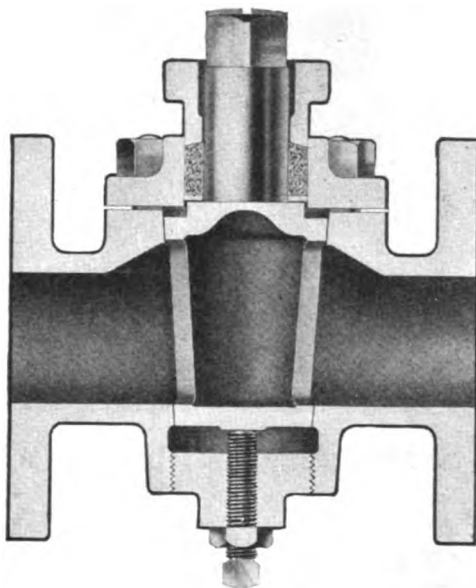


No. 4067-E

CRANE

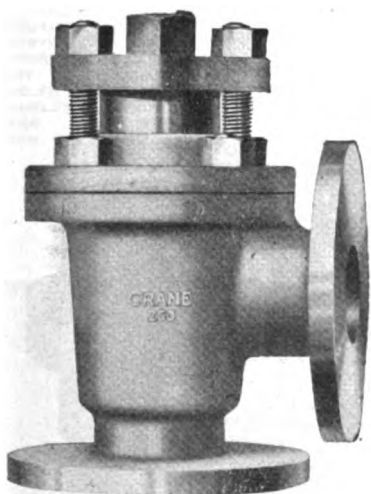
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Gland Packed Cocks For Marine Service

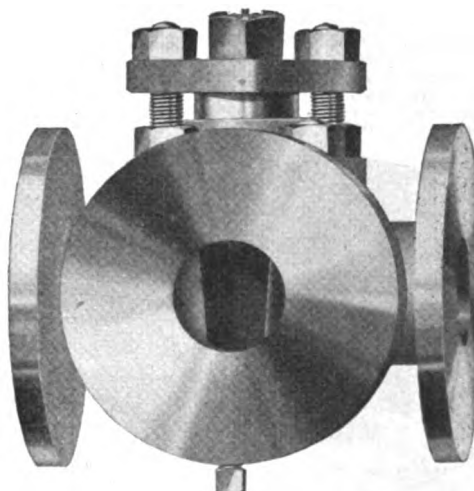


No. 4309-E Straightway

We can furnish standard or extra heavy gland packed Cocks, also standard iron body gland packed Cocks, in the straightway or three-way pattern, with or without bottom opening.



No. 4313-E Angle



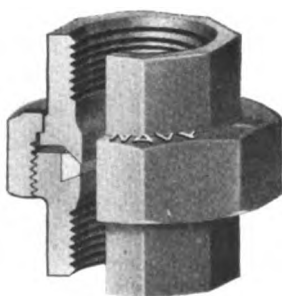
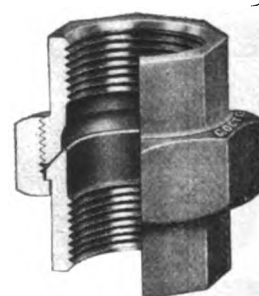
No. 4311-E Three-way

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CRANE**FLANGED ELBOW****SCREWED CROSS****FLANGED TEE**

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For Marine Service

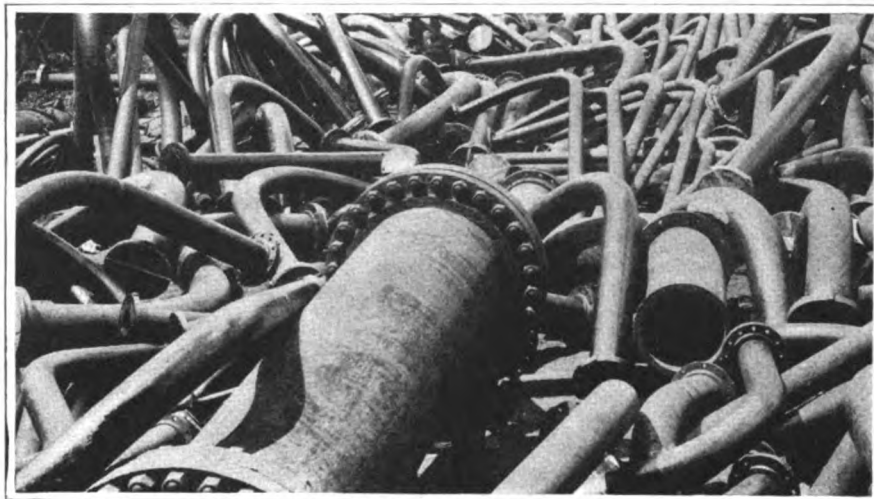
Made in Composition, Cast
 Iron, Cast Steel, and Ferrosteel;
 also Forged Metal, in all sizes
 and for any working pressure.

**MALLEABLE NAVY UNION****HYDRAULIC ELBOW****BRASS OCTAGON UNION****CRANE**

CRANE

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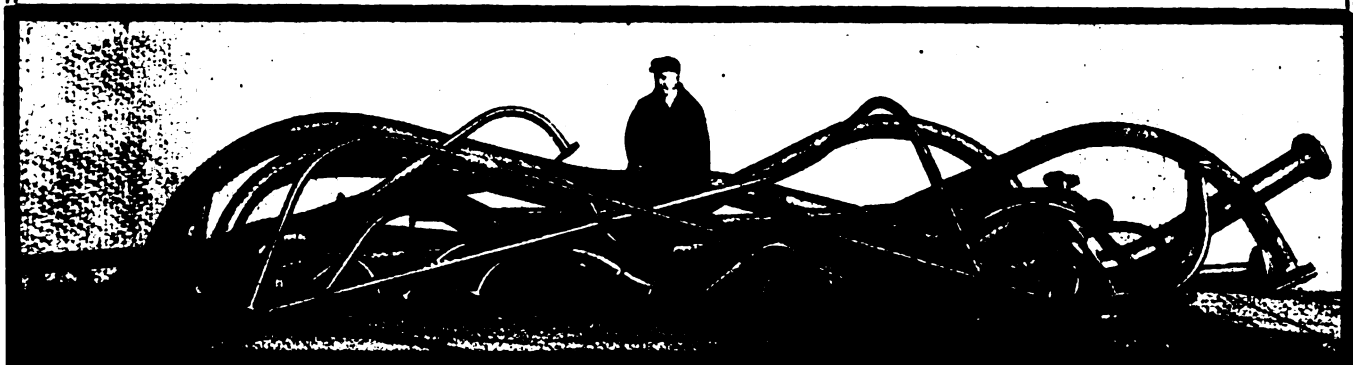
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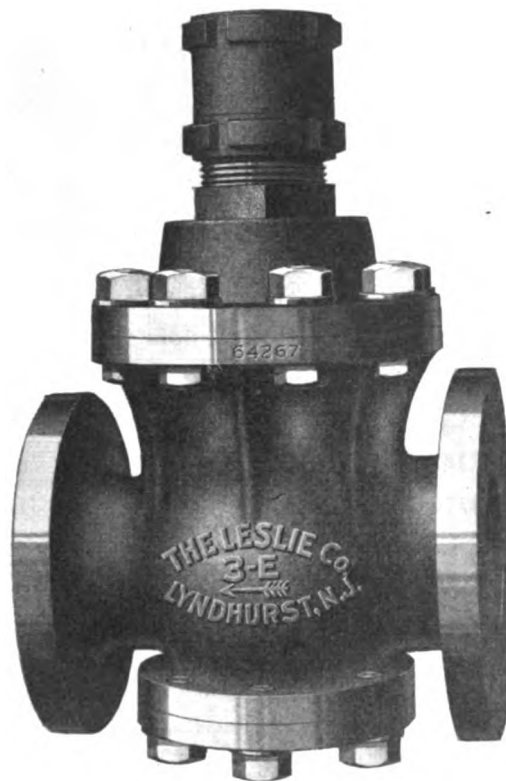
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For Steam or Air



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Lyndhurst, N. J.

Catalogue upon request

Pacific Coast Agents
CHAS. C. MOORE & CO., Engrs.
San Francisco, Cal.

Ludlow Gate Valves

For all purposes

STEAM, WATER, OIL, GAS

all pressures —

125 lbs. to 4000 lbs.

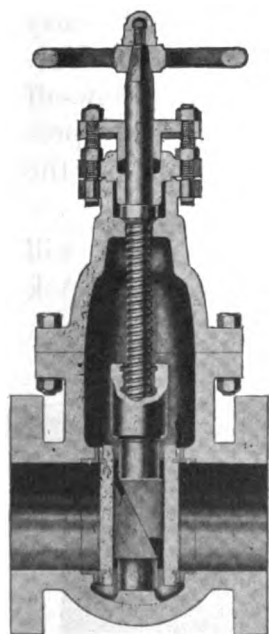
Water test pressure
SIZES, $\frac{1}{2}$ " to 78"



**Bronze Valves,
Iron Body Valves
with bronze mountings
Valves for Oil Tankers**

SIMPLE IN CONSTRUCTION

The chief points that sharply distinguish LUDLOW Valves are (1) the double gates that LOCK with a wedge when they are exactly opposite the ports; (2) the *ground faces* of seats and gates, which means absolute tightness.



**Check Valves
Foot Valves
Indicator Posts
Sluice Gates
and Fire Hydrants**

Catalog on Request

THE LUDLOW VALVE MFG. CO.

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Branch Offices: New York, Philadelphia, Boston, Pittsburgh, Chicago, Kansas City

YARNALL-WARING COMPANY

100 Mermaid Avenue, Chestnut Hill

PHILADELPHIA, PENNA.

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				CLEVELAND				

YARWAY SEATLESS ^{formerly} (SIMPLEX) BLOW-OFF VALVE

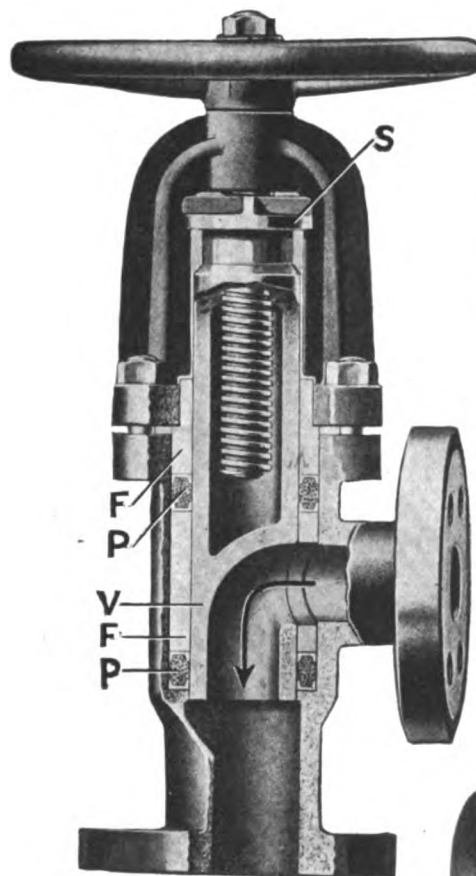
In the exacting requirements of navigation Yarway Seatless Blow-Off Valves show exceptional endurance. Under the erosion of high pressure steam they remain absolutely tight. The packing, in protected positions above and below the port, rarely has to be renewed in less than two years. A half-million tons of shipping built during the war period are equipped with Yarway Valves.

The smaller illustrations show two special types of all-bronze Yarway Valves for marine service, de-

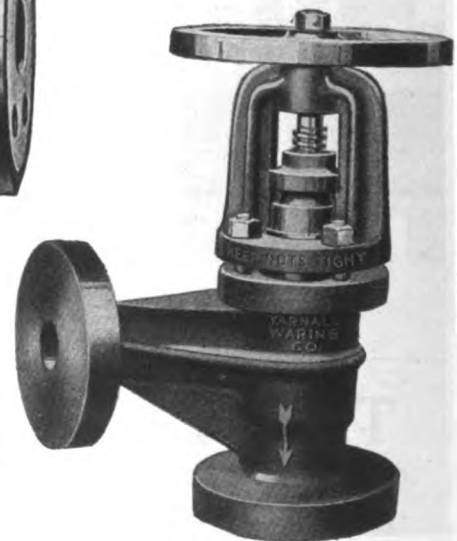
signed for surface and bottom blow-off. These valves can be made to meet unusual service conditions requiring special center to face of inlet or outlet and diameter of flanges — angle or straightway, screw or flange.

The large illustration shows the simple, sturdy construction and easy operation of the Yarway Seatless Blow-off Valve. Note the protected position of the packing.

Details and prices will be sent on request. Ask for Booklet B-410.

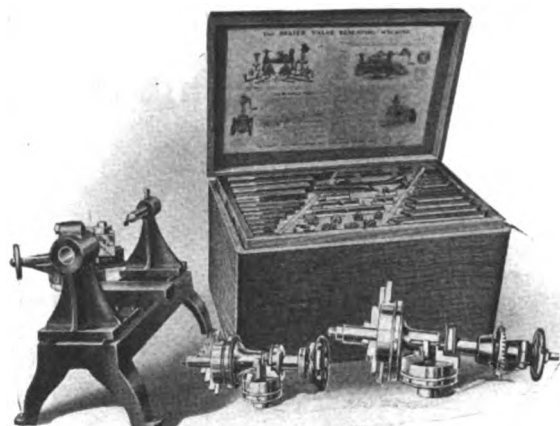


OPERATION:— In closing valve, shoulder "S" on plunger "V" engages the follower gland "F", compressing packing "P" above and below the port, making an absolutely tight valve.



DEXTER VALVE RESEATING MACHINES

Are known wherever valves are used and are the result of 30 years specializing in valve reseating tools.



This illustration shows the polished case with tray for cutters and small parts in which our No. 6 T-L Outfit is packed. This machine has a capacity for reseating globe valves $\frac{1}{4}$ to 6 inches.

The Dexter Machines reface worn

globe valve seats and discs accurately, and leave a seat that is absolutely steam or water tight. The same valve may be reseated from 10 to 20 times without removing the valve body from the pipe line.

NET PRICES FOR MACHINES FOR FLAT AND TAPER SEATED GLOBE VALVES

Outfit No.	3 T-L	4 T-L	6 T-L	8 T-L	10 T-L	12 T-L
For Valves, sizes .	$\frac{1}{4}$ -3	$\frac{1}{4}$ -4	$\frac{1}{4}$ -6	$\frac{1}{4}$ -8	$\frac{1}{4}$ -10	$\frac{1}{4}$ -12
Price	\$109.38	\$128.13	\$171.88	\$234.38	\$328.13	\$421.88



This illustration shows our improved machines for recutting valves 3 to 6 inches and 6 to 12 inches attached to valves.

These machines are geared, making powerful machines that carry the cutters easily, cutting the hardest metal smoothly without chattering.

They are extensively used on all classes of valves the world over, being used on board every ship in the United States Navy, and have always given great satisfaction.

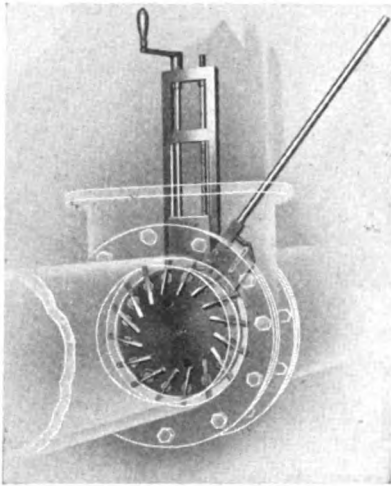
See following pages for illustrations and prices of Gate and Pump Valve Machines.

THE LEAVITT MACHINE COMPANY

70 East River Street, Orange, Mass.

DEXTER GATE VALVE RESEATING MACHINES

*are the result of 30 years' experience
specializing in tools for refacing valves*



**Gate Support in Valves, Showing
Cutter Face**

These machines are as positive in operation as the Dexter Machines for refacing globe valves. They reface worn valve seats and their solid gates or split discs exactly alike, making a perfectly tight valve for water or steam.

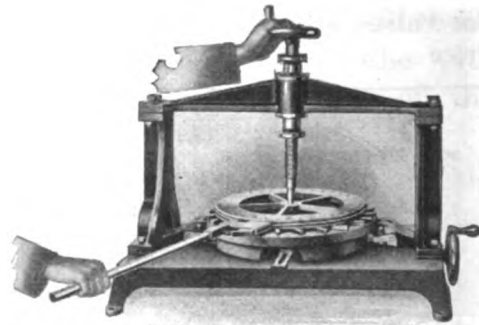
Removing a gate valve from the piping is a tedious job. To chuck the valve body or gate in a lathe and recut the seating surfaces with the accuracy required for a tight valve is nearly an impossibility, even in well-equipped machine rooms, and the results are seldom successful.

Old gate valves with seats worn beyond repair can be made tight and serviceable as a new valve by installing new seat rings and refacing the rings and valve gate with a Dexter Machine.

The cutter support is quickly attached to the valve, and the cutter feed bearing stud centered with relation to seat to be refaced. This simple adjustment is operated and controlled by merely turning of crank handle attached to screw threaded spindle. This one simple operation attaches cutter support to valve and centers the rotary cutter bearing stud. The cutter is fed by simply attaching the crank handle to one of the spindles at the top of machine and rotating the same. This spindle operates a set of spiral gears that rotate an internally threaded sleeve which carries the cutter bearing spindle.

A few rotations of the cutter operated by the ratchet handle and the valve seat is accurately refaced, and the machine is quickly adjusted for refacing the opposite seat.

The disc gate is quickly leveled by turning screw standards on dogs, and securely chucked by turning wheel on end of machine. A few rotations of the cutter operated by the ratchet handle and the disc is refaced.



Gate Disc Cutter

Outfit No.	2-3-C	2-6-C	3-6-C	2-8-C	3-8-C	2-10-C	3-10-C	2-12-C
Capacity	1½-3	1½-6	3-6	1½-8	3-8	1½-10	3-10	1½-12
Price	\$150.00	\$325.00	\$262.50	\$418.75	\$343.75	\$606.25	\$531.25	\$693.75

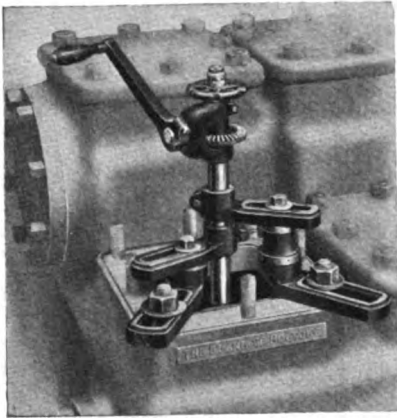
Outfit No.	3-12-C	6-12-C	2-14-C	3-14-C	6-14-C	2-16-C	3-16-C	8-16-C
Capacity	3-12	6-12	1½-14	3-14	6-14	1½-16	3-16	8-16
Price	\$618.75	\$462.50	\$787.50	\$712.50	\$556.25	\$912.50	\$837.50	\$681.25

Dexter Globe Valve Reseating Machines are shown on Preceding Page.

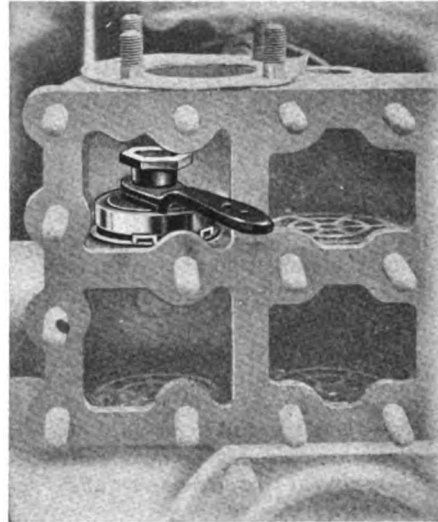
THE LEAVITT MACHINE COMPANY
70 EAST RIVER STREET ORANGE, MASS.

The **Dexter** PUMP VALVE RESEATING MACHINES

Reface the seats in all types of feed, circulating, service and mining pumps



This illustration shows the new improved Dexter Pump Valve Machine D-H-6 attached to a triplex double-acting pump, reseating the suction valve seats. The discharge valve seats are re-cut in the same manner.



This illustration shows the Dexter method of recutting pump valve seats which are located in the water chest as shown in the double-acting triplex pump.

PRICE OF PUMP OUTFITS USED INDEPENDENTLY OF GLOBE VALVE MACHINES

Outfit No.	H-6	D-H-6	N-15
Capacity for refacing seats	2-4	2-7½	8-15
Price without Cutters	\$37.50	\$46.25	\$81.25

PRICE OF PUMP ATTACHMENTS USED WITH DEXTER GLOBE VALVE RESEATING MACHINES

Attachment No.	M-6	D-M-6	
Capacity for Reseating	2-4	2-7½	
Price without Cutters	\$21.25	\$30.00	

Add Prices of Pump Cutters Required to Prices of Pump Outfit or Attachment

PRICES OF S. & W. PATENT PUMP VALVE SEAT CUTTERS

Size, Inches . . .	2	2½	3	3½	4	4½	5	5½	6
Price	\$15.00	\$15.00	\$15.00	\$18.75	\$18.75	\$18.75	\$22.50	\$22.50	\$22.50
Size, inches . . .	6½	7	7½	8	10	12	14	15	
Price	\$27.50	\$27.50	\$27.50	\$37.50	\$62.50	\$81.25	\$93.75	\$100.00	

Give Diameter for Pump Valve Stud for Each Cutter

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Steam Traps and Temperature Regulators

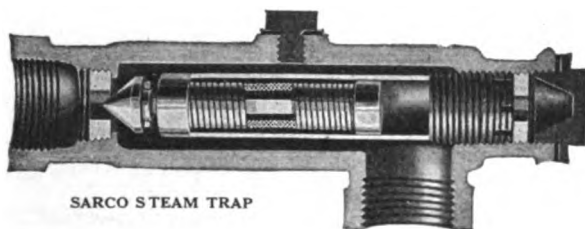
SARCO Steam Trap

The Steam Trap "Sarco" differs from every other type of steam trap, as it utilizes the pressure of a liquid (a heavy hydro-carbon oil) hermetically sealed within a tube. When steam reaches the trap the oil expands and compresses a spirally corrugated diaphragm, forcing out a packless piston, closing the valve.

The condensation, being of lower temperature than the steam, permits the contraction of the oil and opens the valve. Thus, whenever condensation is in the line, the valve is open, but no live steam ever gets past. The action is unvarying, as the oil never fatigues, as metal does, not deteriorate, as volatile liquids do.

Used extensively on BOLLERS

The use of liquid (hydraulic expansion) permits the use of this trap not only for low pressure, but also for high pressures to 200 lbs. It needs no storage space, as required by the bucket or float traps it displaces, and it is far cheaper and the smallest, lightest, and most compact trap used for this service. A 1" high pressure trap suitable for any given pressure up to 200 lbs. costs about \$10.00, is 7/4" long, and weighs only 3 lbs.



SARCO STEAM TRAP

Lightest and Most Compact Steam Trap

These traps are being used by the largest shipbuilding concerns everywhere, not only for heating systems and for draining high or low pressure pipe lines, but also the most perfect means of draining the cylinders and chests of cargo winches and other desk machinery.

For condensation the trap is always open. Live steam instantaneously closes the trap. With all condensation drained, freezing is impossible.

LIST PRICES OF STEAM TRAP SARCO F.O.B. BETHLEHEM, PA.

Low Pressure, 0 to 50 Lbs.

Size of valve	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
List prices...	\$6.00	6.00	9.45	11.25	24.15	30.00	38.70	51.75	60.00

High Pressure, 50 to 200 Lbs.

Size of valve	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
List prices...	\$7.75	7.75	10.35	12.00	28.50	34.50	48.30	60.00	75.00

SARCO Temperature Regulators

The "Sarco" Temperature Regulator is based on the same principle as the Steam Trap "Sarco" and relies on the expansion of a liquid hermetically sealed within a tube. The tube is exposed to heat changes and the liquid expands and contracts proportionately, thereby operating a balanced valve through a packless piston.

The "Sarco" Temperature Regulator is entirely self-contained, and is self-operated, not requiring electricity, compressed air, water, or any other auxiliary motive power.



TYPE T R 21
SARCO TEMPERATURE REGULATOR

It is extremely compact, light in weight, and therefore particularly suitable for marine work. These regulators are being used in large numbers on United States Government and Merchant Marine vessels. They are suitable for control of hot water service tanks, steam-heated rooms, fuel-oil storage tanks, also isolated buildings, etc.

LIST PRICES

TYPE KR-14 SARCO TEMPERATURE REGULATOR FOR ATMOSPHERE UP TO 300° F.

Size of valve	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
List prices...	\$60	\$65	\$70	\$75	\$85	\$95	\$110	\$130	\$170

TYPE TR-21 SARCO TEMPERATURE REGULATOR FOR LIQUIDS AND DRY KILNS

Size Inches	Weight Pounds	List Price	Size Inches	Weight Pounds	List Price	Size Inches	Weight Pounds	List Price
1/2	8	\$75	1 1/2	22	\$95	3	51	\$135
3/4	8	80	2	28	100	4	81	185
1	9	85	2 1/2	37	115	5	132	250
1 1/4	13	90				6	158	300

The above prices include 6 ft. tubing between control valve and thermostat. Longer lengths subject to a charge of 50 cents per additional foot of armoured tubing. If lead sheathing of thermostat is necessary, there is an additional charge of \$3.50 net. All prices f.o.b. Bethlehem, Pa.

SARCO CO., Inc., 232 Broadway, New York

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The Stirling Press

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Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich.	43
Seth Thomas Clock Co., 19 W. 44th St., New York.	20, 21
Southland Steamship Co., Savannah, Ga.	101
Stirling Press, The, 318 W. 39th St., New York.	130B
Stratford Oakum Co., George, Jersey City, N. J.	28
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Terry Steam Turbine Co., The, Hartford, Conn.	110
Texas Co., The, 17 Battery Pl., New York.	61-64
Thorne-Pioneer Co., Inc., 3 Atlantic Av., Brooklyn.	129
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Tracy Engineering Co., The, 473 Sixth St., San Francisco.	13
Trout Co., H. G., Buffalo.	73
Union Steel Products Co., Ltd., Albion, Mich.	2
United Marine Contracting Corp, 15 Whitehall St., New York.	128
United States Chain & Forging Co., Union Arcade, Pittsburgh.	15
United States Mail Steamship Co., Inc., 120 Broadway, New York.	130D
United States Rubber Co., 1790 Broadway, New York.	57
Vibration Specialty Company, Harrison Bldg., Philadelphia.	3
Wheeler Condenser & Engineering Co., Carteret, N. J.	23
Wheeler Mfg Co., C. H., Philadelphia.	24, 25
Whitlock Cordage Co., 46 South St., New York.	27
Worthington Pump & Machinery Corp, 115 Broadway, New York.	74-81
Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill, Philadelphia.	124
York Manufacturing Co., York, Pa.	98

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CLASSIFIED INDEX

ABRASIVE CLOTH & PAPER

American Glue Co., 212 Beverly St., Boston
 Armour Sand Paper Works, Chicago
 Baeder, Adamson & Co., Richmond St., Philadelphia
 Behr, Herman & Co., 61 Broadway, New York
 Manning Abrasive Co., Grand Central Palace, New York
 United States Sand Paper Co., Williamsport, Pa.
 Ward, Fred & Son, San Francisco
 Wausau Abrasives Co., Chicago

ABRASIVE DISCS

Badger Tool Co., Beloit, Wis.
 Besly & Co., Chas. H., 16 Clinton St., Chicago
 Carborundum Co., The, Niagara Falls, New York
 Gardner Machine Co., Beloit, Wis.
 Henes, Louis G., San Francisco
 Inter-Continental Mach'y Corp., 40 Liberty St., New York

ABRASIVE WHEELS & METAL (See also grinders)

American Abrasive Metals Co., 50 Church St., New York
 Carborundum Co., The, 233 Broadway, New York
 Cortland Grinding Wheel Co., Cortland, New York
 Eccles & Smith Co., 71 First St., San Francisco
 Gardner Machine Co., Beloit, Wis.
 General Abrasive Co., Niagara Falls, New York
 Hamden Corundum Wheel Co., Springfield, Mass.
 Manning Abrasive Co., Grand Central Palace, New York
 Maxf Grinding Wheel Corp., Chester, Mass.
 Norton Co., Worcester, Mass.
 Pittsburgh Grinding Wheel Co., Rochester, Pa.
 Sterling Grinding Wheel Co., The, Tiffin, Ohio
 Superior Corundum Wheel Co., Waltham, Mass.
 Vitrified Wheel Co., Westfield, Mass.

ACCUMULATORS, Hydraulic

Aldrich Pump Co., Allentown, Pa.
 Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
 Camden Iron Works, Camden, N. J.
 Chambersburg Engineering Co., Chambersburg, Pa.
 Hydraulic Press Mfg. Co., Mt. Gilead, Ohio
 Manning Maxwell & Moore, 119 W. 40th St., New York
 Mesta Machine Co., Pittsburgh
 Morgan Engineering Co., Alliance, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York
 Southark Foundry & Machine Co., Philadelphia
 Watson-Stillman Co., 30 Church St., New York

ACETYLENE

Air Reduction Sales Co., 120 Broadway, New York
 Commercial Acetylene Supply Co., 80 B'way, New York
 K-G Welding & Cut. Co., Inc., 556 W. 34th St., New York
 Linde Air Products Co., Kohl Bldg., San Francisco
 Oxweld Acetylene Co., Newark, N. J.
 Prest-o-Lite Co., Inc., Indianapolis, Ind.

ACETYLENE GENERATORS

Air Reduction Sales Co., 120 Broadway, New York
 Davis-Bournonville Co., Jersey City, N. J.

ACID, Hydrofluoric & Muriatic

Baker Chemical Co., J. T., Phillipsburg, N. J.
 Cooper & Co., Chas., 194 Worth St., New York
 Denver Fire Clay Co., The, Denver, Col.
 DuPont de Nemours & Co., E. I., Wilmington Del.
 General Platers Supply Co., 489 Broome St., New York
 Harshaw, Fuller & Goodwin Co., Cleveland
 Lamberg Chemical Co., St. Louis, Mo.
 Palo Co., 90 Maiden Lane, New York
 Partola Mfg Co., 160 Second Av., New York

ACID, Sulphuric (Concentrate & Dilute)

Baker Chemical Co., J. T., Phillipsburg, N. J.
 Columbia Chemical Works, 11 Broadway, New York
 Denver Fire Clay Co., The, Denver, Col.
 DuPont de Nemours & Co., E. I., Wilmington, Del.
 General Chemical Co., 25 Broad St., New York
 Harrison Bros. Co., 35th & Grays Ferry Rd., Philadelphia

Hachmeister Lind Chemical Co., Pittsburgh, Pa.
 Huron Chemical Co., 51 Bergen St., Brooklyn, N. Y.
 Lamberg Chemical Co., St. Louis, Mo.
 Merriman Chemical Co., Boston

ADAPTERS, Electric

Benjamin Electric Mfg Co., 806 Washington Blvd, Chicago
 Bryant Electric Co., The, Bridgeport, Conn.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Elec & Engrg Co., 172 Steuart St., San Francisco
 Inland Electric Co., 14 N. Franklin St., Chicago
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43

Wagner Elec Mfg Co., 6400 Plymouth Av., St. Louis, Mo.
 Westinghouse Electric & Mfg. Co., Pittsburgh

ADZES, Hollow, Lip & Ship Carpenter

American Axe & Tool Co., Glassport, Pa.
 Beadly Axe & Tool Works, Jersey City, N. J.
 Block & Co., Inc., John B., Chester, Pa.
 Hammacher & Schlemmer Co., 133 Fourth Av., New York
 Mock & Co., Rochester, N. Y.
 Shapleigh Hardware Co., St. Louis, Mo.
 Verona Tool Works, Oliver Bldg., Pittsburgh
 White Co., L. J., 50 Columbia Street, Buffalo, N. Y.

AIR BANKS

Air Tight Steel Tank Co., Pittsburgh
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Continental Iron Works, West & Calyer Sts., Bklyn, N. Y.
 Ingersoll-Rand Co., 11 Broadway, New York
 Lancaster Iron Works, Inc., Lancaster, Pa.
 Llewellyn Iron Works, Los Angeles, Cal.
 Main Iron Works, San Francisco
 National Tube Co., Pittsburgh
 Pressed Steel Tank Co., 208 S. La Salle St., Chicago
 Scaife & Sons Co., Wm. B., Pittsburgh
 Wood Mfg. Co., John, Conshohocken, Pa.

AIR COMPRESSORS

American Air Compressor Wks, 26 Cortland St., New York
 Black & Decker Mfg. Co., Baltimore, Md.
 Bury Compressor Co., 1800 Cascade St., Erie, Pa.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 De Laval Steam Turbine Co., Trenton, N. J., see pp. 106 & 107
 Dow Pump & Diesel Engine Co., Alameda, Cal.
 Fairbanks, Morse & Co., So. Wabash Av., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hallidie Machinery Co., Spokane, Wash.
 Herberts Machinery & Sup. Co., 168 2nd St., San Francisco
 Hooven, Owens, Rentschler Co., The, Hamilton, Ohio, see pp. 84-91

Independent Pneu. Tool Co., W. Jackson Blvd, Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Norwalk Iron Works, South Norwalk, Conn.
 Rix Compressed Air & Drill Co., Inc., 505 Howard St., San Francisco, See p. 1
 Ryerson, Jos. T. & Son, Chicago
 Smith-Booth-Usher, Los Angeles
 Sullivan Machinery Co., 22 So. Michigan Av., Chicago
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

AIR COMPRESSORS, Portable

Black & Decker Mfg. Co., The, Baltimore
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Rix Compressed Air & Drill Co., Inc., 505 Howard St., San Francisco, See p. 1

AIR CONDITIONING EQUIPMENT

American Blower Co., Detroit, Mich.
 Schutte & Koerting Co., 1174 Thompson St., Philadelphia
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108 & 109

AIR EJECTORS (See Ejectors, Air)

AIR HOISTS (See Hoists, Air)**AIR HOSE (See Hose, Air)****AIR HOSE COUPLINGS (See Hose Couplings, Air)****AIR PORTS**

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
see p. 100

Bridgeport Engineering Co., Bridgeport, Conn.

Carpenter Co., Geo. B., Chicago

Delaware Marine Mfg. Co., The, Wilmington, Del.

Doud-MacFarlane Machy. Co., Tacoma, Wash.

Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58

Eagle Brass Fdry Co., 21 Spokane St., Seattle

Harris Engineering Co., Bridgeport, Conn.

Horne Mfg Co., Mercer & Colgate Sts., Jersey City, N. J.

International Casement Co., Jamestown, N. Y.

Joshua Hendy Iron Works, San Francisco

Laughlin Co., Thos., The, Bridgeport, Conn.

McNab Co., The, Bridgeport, Conn.

Oregon Brass Works, Portland, Oregon

Page Engineering Co., Baltimore, Md.

Pittsburgh Lamp, Brass & Glass Co., Pittsburgh

Rostand Mfg. Co., Milford, Conn.

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Wilcox, Crittenden & Co., Middletown, Conn.

AIR PORT WIND SCOOPS

Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58

Kainer & Co., 761 Mather St., Chicago

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Webb & Son Co., Elisha, 136 S. Front St., Philadelphia

AIR PUMPS (See Pumps, Air)**AIR REGISTERS, Fuel Oil Burner**

Atlantic Basin Iron Works, Brooklyn, N. Y.

Babcock & Wilcox Co., The, 85 Liberty St., New York,
see p. 7

Best, Inc., W. N., 11 Broadway, New York

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
see p. 100

Coen Co., The, San Francisco

Moore Shipbuilding Co., San Francisco

Peabody Engineering Corp, 331 Madison Av., New York,
see p. 65

Redington Standard Fittings Co., Bethlehem, Pa.

Schutte & Koerting Co., Philadelphia

Tate-Jones Co., Inc., Pittsburgh

Todd Shipyards Corp., 15 Whitehall St., New York

Worthington Pump & Machinery Corp, 115 Broadway,
New York, see pp. 74-81

AIR SEPARATORS (See Separators, Air)**ALARMS, Fire, Automatic**

Cory & Son, Inc., Chas., Varick & King Sts., New York

Fire Detecting Wire Corp, 2 W. 45th St., New York, see
p. 48

Kidde & Co., Walter (Rich System), 90 West St., New
York, see p. 47

ALARMS, Fire & Collision

Chadburn Ship Telegraph Co. of America, Inc., Troy, N. Y.

Cory & Son, Inc., Chas., Varick & King Sts., New York

Elmer & Co., J. O., New Orleans

Holtzer-Cabot Electrical Co., The, 125 Amory St., Boston

Horne Mfg Co., Mercer & Colgate Sts., Jersey City

Polk, R. C., Perkins Bldg., Tacoma

Henschel & Co., Inc., Chas. J., 111 Dobbin St., Bklyn, N. Y.

ALARMS, Low Water

Chicago Automatic Switch Co., Chicago

Cory & Son, Inc., Chas., King and Varick Sts., New York

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Hills-McCanna Co., Chicago

Jerguson Gage & Valve Co., Somerville, Boston

Kieley & Mueller, Inc., 34 W. 13th St., New York

Lunkenheimer Company, Cincinnati

Reliance Gauge Column Co., Cleveland

Williams Gauge Co., The, Pittsburgh

ALCOHOL, Denatured

Berg Industrial Alcohol Co., David, Philadelphia

Gray & Co., Wm. S., 80 Maiden Lane, New York

Hudson Co., Inc., H. H., 150 Nassau St., New York

International Alcohol Corp., 280 Broadway, New York

N. Y. Industrial Alcohol Corp., 90 Wall St., New York

Salomon & Bro., L. A., 216 Pearl St., New York

ALCOHOL, Wood

Cleveland Cliffs Iron Co., Cleveland

Gray & Co., Wm. S., 80 Maiden Lane

Hudson Co., Inc., H. H., 150 Nassau St., New York

International Alcohol Corp., 280 Broadway, New York

N. Y. Industrial Alcohol Corp., 80 Wall St., New York

Stork & Co., Inc., Chas. T., 154 Nassau St., New York

U. S. Industrial Alcohol Co., 27 William St., New York

ALEDADES

Buff & Buff Mfg. Co., Jamaica Plains, Boston

Delwood Mfg. Co., 407 Elizabeth St., Newark, N. J.

Gurley, W. & L. C., Troy, N. Y.

Hand & Sons, Jno. E., Haddonfield, N. J.

Kerr Co., Wm. B., Newark, N. J.

Metallograph Corp, Grand Central Term., New York

Schroeder Lamp Wks, Edw., Jersey City, N. J.

Sperry Gyroscope Co., Brooklyn, N. Y.

White Mfg Co., J. H., 3d St., Bklyn., N. Y.

ALTERNATORS, Motor

C. & C. Electric Co., Garwood, N. J.

Century Electric Co., St. Louis, Mo.

Crocker Wheeler Co., Ampere, N. J.

Cutler-Hammer Mfg Co., 50 Church St., New York, see
p. 35

Diehl Mfg Co., Elizabeth, N. J.

Eck Dynamo & Motor Co., Belleville, N. J.

Electro Dynamic Co., Bayonne, N. J.

General Electric Co., Schenectady, N. Y., see pp. 36-41

Herzog Elec & Eng Co., 172 Steuart St., San Francisco

Holtzer-Cabot Electric Co., Boston

Ideal Electric & Mfg Co., Mansfield, Ohio

Lincoln Electric Co., Cleveland

Northwestern Electric Co., Chicago

Phoenix Electric Co., Mansfield, Ohio

Reliance Electric & Engr Co., Cleveland

Reynolds Electric Co., Chicago

Ridgeway Dynamo & Engine Co., Ridgeway, Pa.

Wagner Electric Co., St. Louis, Mo.

Westinghouse Electric & Mfg Co., Pittsburgh

ALUMINUM BRONZE

Bunting Brass & Bronze Co., Toledo

Cross Engineering Co., Carbondale, Pa.

Mueller Metals Co., Port Huron, Mich.

Titanium Bronze Co., Inc., Niagara Falls, N. Y.

Wellman Bronze Co., Cleveland

ALUMINUM CASTINGS (See Castings, Aluminum)**ALUMINUM INGOTS & BILLETS**

Aluminum Company of America., Pittsburgh

Anchor Brass & Aluminum Co., Cincinnati

Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.

Caskey's Brass & Bronze Wks, Richmond & York Sts.,
Philadelphia

Cleveland Metal Products Co., The, Cleveland

Columbia Smelting & Refin Wks, 365 West St., New York

Edro-Richardson Brass Co., The, Baltimore

Fidelity Metal Co., 196 Diamond St., Brooklyn, N. Y.

Illinois Pure Aluminum Co., Lemont, Ill.

Magnus Co., Inc., 860 Main St., Los Angeles

Monumental Bronze Co., 354 Howard Av., Bridgeport,
Conn.

Norwalk Fdry & Mach Co., Norwalk, Conn.

Sandoval Zinc Co., 410 No. Peoria St., Chicago

Seligman, Arthur, 165 Broadway, New York

United American Metal Corp, Brooklyn, N. Y.

United Smelting & Aluminum Co., New Haven, Conn.

U. S. Reduction Co., East Chicago, Ind.

White & Co., Inc., No. American Bldg, Philadelphia

ALUMINUM PAINT (See Paints)**ALUMINUM POWDER, Dry (See Paints)****ALUMINUM SULPHATE**

Alexander & Co., G. S., 61 Broadway, New York

Baker Chemical Co., J. T., Phillipsburg, N. J.

Denver Fire Clay Co., The, Denver, Col.
 DuPont de Nemours & Co., E. I., Wilmington, Del.
 General Chemical Co., 25 Broad St., New York
 General Platers Supply Co., 489 Broome St., New York
 Hachmeister Lind Chemical Co., Pittsburgh
 Harrison Bros., Co., 35th & Grays Ferry Rd., Philadelphia
 Huron Chemical Co., 281 Butler St., Bklyn., N. Y.
 Lehn & Fink, 120 William St., New York

ALUMINUM WARE (See Also Galley Equipment)

Aluminum Cook. Utensils Co., The, New Kensington, Pa.
 Barth & Son, L., 32 Cooper Sq., New York
 Bramhall Deane Co., 261 W. 36th St., New York
 Lalance & Grosjean Mfg Co., 299 Broadway, New York
 Republic Metal Ware Co., 254 36th St., New York
 Weiss Co., M., 18 Warren St., New York
 West Bend Aluminum Co., West Bend Wis.
 West Lafayette Mfg Co., West Lafayette, Ohio

AMMETERS, Portable D. C.

Brown Instrument Co., Philadelphia
 Central Electric Co., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Lincoln Electric Co., Chicago
 Pyroelectric Instrument Co., Trenton, N. J.
 Queen-Gray Co., Philadelphia
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Weston Elec. Instrument Wks, Waverly Pk, Newark, N. J.

AMMETERS, Radiation & Hot Wire

American Radio & Research Co., 21 Park Row, New York
 Central Electric Co., Chicago
 Clapp-Eastham, Cambridge, Mass.
 Cutting & Washington Radio Corp., 6 & 8 W. 48th St., New York, see p. 82
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 General Radio Co., Cambridge, Mass.
 International Radio Telegraph Co., 326 B'way, New York
 Lincoln Electric Co., Chicago
 Radio Corporation of America, 233 Broadway, New York, see p. 83
 Roller-Smith Co., 233 Broadway, New York
 Wireless Improvement Co., 47 West St., New York

AMMETERS, A. C. & D. C., Switchboard Type

Central Electric Co., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Electric & Engrg Co., San Francisco
 Hoyt Elec Instrument Wks, 259 Greenwich St., New York
 Jewel Electric Instrument Co., Chicago
 Lincoln Electric Co., Chicago
 N. Y. Electric Switchboard Co., 422 E. 53d St., New York
 Queen-Gray Co., Philadelphia
 Roller-Smith Co., 233 Broadway, New York
 Sterling Switchboard Co., Camden, N. J.
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Weston Electrical Inst Wks, Waverly Park, Newark, N. J.

AMMONIA Anhydrous

Armour & Co., Chicago
 Barrett Co., The, 17 Battery Place, New York
 Bay State Construction & Supply Co., 88 Broad St., Boston
 Benton Transfer Co., Savannah, Ga.
 Bower Chem Mfg Co., H., Grays Ferry Rd, Philadelphia
 Clapp, B. P., Ammonia Co., 256 Broadway, New York
 Faget Engineering Co., 535 Howard St., San Francisco
 Grasselli Chemical Co., Cleveland
 M. & M. Warehouse Co., Atlanta, Ga.
 Miller, A. P., Supply Co., 441 W. 16th St., New York
 Morris & Co., Chicago
 National Ammonia Co., The, 81 Fulton St., New York
 Northwest Ice Machine Co., Seattle, Wash.
 St. Elmo W. Acosta, Jacksonville, Fla.
 So. Construc. & Supply Co., 116 Central Av., Atlanta, Ga.
 United Warehouse Co., Ltd., New Orleans, La.
 Western Chemical Mfg Co., The, Denver, Col.
 Westerlin & Campbell Co., 26 No. Clinton St., Chicago
 York Const. & Supply Co., 508 Terry Av., Seattle, Wash.
 York Engrg. & Supply Co., 2201 Texas Av., Houston, Tex.

AMMONIA GAGES (See Gages, Ammonia)

AMMONIA VALVES & FITTINGS (See Valves & Fittings, Ammonia)

ANCHOR BOLTS (See Bolts, Anchor)

ANCHOR ENGINES

American Engineering Co., Philadelphia
 Braun Mfg Co., C. F., San Francisco
 Cunningham Co., Inc., Allan, Seattle, Wash.
 Dake Engine Co., Grand Haven, Mich.
 Davidson Co., M. T., 154 Nassau St., New York
 Flory Manufacturing Co., S., Bangor, Pa.
 Ford & Geirrine, San Francisco
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, s. p. 30
 Hesse-Martin Iron Works, Portland, Ore.
 Hyde Windlass Co., Bath, Me.
 Loane Engineering Co., Baltimore
 Main Iron Works, San Francisco
 Maine Electric Co., Portland, Me.
 Mundy Hoisting Engine Co., J. S., Newark, N. J.
 National Hoisting Engine Co., Harrison, N. J.
 Seattle Machine Works, Seattle, Wash.
 Standard Machine & Tool Co., Dayton, Ohio
 Sumner Iron Works, Everett, Wash.
 Superior Iron Works, Superior, Wis.

ANCHORS, Boat, Galvanized & Steel (Also See Anchors, Ship)

American Engineering Co., Philadelphia
 Barnes & Co., Winfield, S., 20th & Erie Av., Philadelphia
 Canton Steel Foundry Co., Canton, Ohio
 DeGrauw, Aymer & Co., 34 South St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Foard-Barstow Ship Chandlery Co., 25 Drum St., San Francisco
 Levering Bros., Baltimore
 Marine Hardware Equipment Co., Portland, Me.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 Upson-Walton, Cleveland
 Weeks-Howe-Emerson Co., 90 Market St., San Francisco
 (Also See Ship Chandlers, Port Data Section)

ANCHORS, Sea

Atlantic-Pacific Mfg Co., 124 Atlantic Av., Brooklyn, N. Y.
 Carpenter & Co., Geo. B., 434 N. Wells St., Chicago
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 John Curtin Corporation, 73 Front St., New York
 Kahnweiler's Sons, David, 260 Front St., New York
 Pacific Tent & Awning Co., Portland, Ore.
 Rouse, Captain Frederick, 15 Whitehall St., New York
 Woodward, Wight & Co., New Orleans

ANCHORS, Ship

Admiral Anchor Co., The, 417 Sansom St., Philadelphia
 Allison & Co., Chester, Pa.
 American Engineering Co., Philadelphia
 American Steel Foundries, Chicago
 Bacon & Matheson Forge Co., Lander St., Seattle, Wash.
 Baldt Anchor Co., Chester, Pa.
 Brown & Co., A. Judson, 30 Church St., New York
 Columbia Steel Co., The, 503 Market St., San Francisco
 Fisher, C. W., 52 Broadway, New York
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Philadelphia, see p. 18
 Washington Iron Works, Seattle, Wash.
 Wheeling Mold & Foundry Co., Wheeling, W. Va.

ANEMOMETERS

Davis Instrument Mfg Co., Baltimore
 Gurley, W. & L. E., Troy, N. Y.
 Precision Thermometer & Inst. Co., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Rieker Instrument Co., 1919 Fairmount Av., Philadelphia
 Taylor Instrument Co., Rochester, N. Y.

ANGLE FURNACES (See Furnaces, Angle)

ANGLE VALVES (See Valves, Globe, Cross and Angle)

ANGLES, BRONZE (See Bronze Angles)

ANGLES, STEEL (See Steel Angles)

ANNEALING FURNACES (See Furnaces, Annealing)

STERLING-COOPER CO., NEW YORK

ANNUNCIATORS

Butte Electric & Mfg Co., Seattle
 Cory & Son, Inc., Chas., Varick & King Sts., New York
 Freund Electric Co., Irvington, N. J.
General Electric Co., Schenectady, N. Y., see pp. 36-41
 Henschel & Co., Inc., Chas. J., 111 Dobbin St., Bklyn, N. Y.
 Holtzer-Cabot Electric Co., The., 125 Amory St., Boston
 Horne Mfg Co., Mercer & Colgate Sts. Jersey City
 Klaxon Co., Industrial Div., 1 Madison Av., New York
 Livingston & Co., Inc., J., 104 E. 41st St., New York
 Marine Electric Co., 195 Fremont St., San Francisco
 Ostrander & Co., W. R., 371 Broadway, New York
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh

ANNUNCIATORS, Watertight

Arnessen Electric Co., Inc., 109 Broad St., New York
 Bunnell & Co., J. H., 32 Park Place, New York
 Butte Electric & Mfg Co., Seattle
 Central Electric Co., Chicago
 Cory & Sons, Inc., Chas., Varick & King Sts., New York
 Holtzer-Cabot Electric Co., Boston
 Horne Mfg Co., Mercer & Colgate Sts., Jersey City
 Klaxon Co., Industrial Div., 1 Madison Av., New York
 Lincoln Electric Co., Chicago
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Pittsburgh Electric & Machine Co., Pittsburgh

ANTI-CORROSIVE & ANTI-FOULING PAINTS (See Paint Subhead)**ANTI-FRICTION METAL**

Ajax Metal Co., 45 Richmond St., Philadelphia
 Columbia Smelting & Refin Wks, 365 West St., New York
 Cramp & Sons, Ship & Engine Bldg Co., The Wm., Philadelphia
 Damascus Bronze Co., Pittsburgh
 Eagle-Picher Lead Co., La Salle St., Chicago
 Empire Metal Co., Syracuse, N. Y.
 Eastern Zinc Refining Co., 255 Russell St., Brooklyn, N. Y.
 Fidelity Metal Co., 196 Diamond St., Brooklyn, N. Y.
 Finn Metal Works, John, 327 Second St., San Francisco
 Gt. Western Smelt. & Ref. Co., Folsom St., San Francisco
 Jacobson & Sons Co., I. M., 70 Catharine St., Detroit
 Johnson Bronze Co., New Castle, Pa.
 Lawrenceville Bronze Co., Bessemer Bldg, Pittsburgh
 Leavitt & Co., C. W., 30 Church St., New York
 Lumen Bearing Co., Buffalo, N. Y.
 Magnolia Metal Co., 115 Bank St., New York
 Magnus Co., 860 N. Main St., Los Angeles
 Marwedel, C. W., 76 First St., San Francisco
 Michigan Smelting & Refining Co., Detroit
 Nassau Smelting & Refin Corp, 603 W. 29th St., New York
 National Lead Co., 111 Broadway, New York
 National Smelting & Refining Corp, 92 John St., New York
 Pittsburgh White Metal Co., 160 Leroy St., New York
 Reeves & Co., Paul A., 1415 Catherine St., Philadelphia
 Richards & Co., 200 Causeway St., Boston
 Rochester Lead Works, Rochester, N. Y.
 Ryerson & Son, Joseph, T., Chicago
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Shonberg, Inc., I., 122 Flushing Av., Brooklyn, N. Y.
 Stand. Separator Co., 45th Av. & Burnham St., Milwaukee
 Union Smelting & Refining Co., 63 Park Row, New York
 United American Metal Corp., Diamond & Meserole Sts., Brooklyn, N. Y.
 U. S. Reduction Co., East Chicago, Ind.
 Watson Frye Co., Ltd., Bath, Maine

ANTIMONY

American Lead Co., 52 Vanderbilt Av., New York
 American Smelting & Refin. Co., 120 Broadway, New York
 Atlantic Smelting & Refining Wks, Inc., 57 Richards St., Brooklyn, N. Y.
 Baltimore Copper Smelting & Rolling Co., 130 4th Av., New York
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Columbia Smelting & Refin Wks, 365 West St., New York
 Crown Metal Co., Milwaukee, Wis.
 Eagle Smelting & Refining Wks, 233 Broadway, New York
 Great Western Smelting & Refining Co., Chicago
 Hardy, Chas., 15 Park Row, New York

Leavitt & Co., C. W., 30 Church St., New York
 Magnolia Metal Co., 115 Bank St., New York
 Michigan Smelting & Refining Co., Detroit, Mich.
 Miller & Son Co., Chas., Utica, N. Y.
 Nassau Smelting & Refin. Co., 603 W. 29th St., New York
 Niles & Co., Inc., F. H., 233 Broadway, New York
 Pope Metals Co., 90 West St., New York
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Seligman, Arthur, 165 Broadway, New York
 Stand. Smelt. & Refining Co., 547 W. 21st St., New York
 Trotter & Co., Nathan, Philadelphia
 Union Smelting & Refining Co., 63 Park Row, New York
 United Lead Co., 111 Broadway, New York

ANVILS

Columbia Anvil & Forging Co., W. Frankfort St., Columbus, Ohio
 Columbia Hardware Co., Cleveland
 Eagle Anvil Works, Trenton, N. J.
 Fisher & Norris, Trenton, N. J.
 Hay-Budden Mfg. Co., 254 N. Henry St., Brooklyn, N. Y.
 Illinois Iron & Bolt Co., Carpentersville, Ill.
 Nast Machine Co., D., Philadelphia
 Parker Co., Charles, Meriden, Conn.
 Potts & Co., Horace T., Philadelphia
 Southern Railway Supply & Equipment Co., St. Louis
 West Steel Casting Co., Cleveland
 Yost Mfg. Co., Meadville, Pa.

ARBORS

Acme Tool & Machine Co., The, Derby, Conn.
 Alert Tool Co., N. 6th St., Philadelphia
 Browne & Sharpe Mfg Co., Providence, R. I.
 Cincinnati Milling Mach Co., Cincinnati
 Cleveland Twist Drill Co., Cleveland
 Cochrane-Bly Co., Rochester
 Cushman Chuck Co., Hartford, Conn.
 Detroit Twist Drill Co., Detroit
 Lincoln Twist Drill Co., Taunton, Mass.
 Morse Twist Drill Co., New Bedford, Mass.
 National Twist Drill & Tool Co., Detroit
 Nicholson Co., W. H., Wilkes-Barre, Pa.
 Taft-Peirce Mfg Co., The, Woonsocket, R. I.
 Union Mfg Co., New Britain, Conn.
 Westcott Chuck Co., Oneida, N. Y.
 Whitman & Barnes Mfg. Co., Akron, Ohio
 Whitney Mfg. Co., Hartford, Conn.

ARMALAC

General Electric Co., Schenectady, N. Y., see pp. 36-41
Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

Manhattan Electric Supply Co., 17 Park Row, New York
 Massachusetts Chemical Co., Walpole, Mass.
 Standard Paint Co., 233 Broadway, N. Y.
 Stanley & Patterson, West & Hubert Sts., New York
 Western Electric Co., 151 Fifth Av., New York

ARMATURES, Motor & Generator

(Apply to Manufacturer of Your Present Apparatus)

ASBESTINE, Dry & in Oil (See Under Paints)**ASBESTOS**

Adams Balcom Co., New Montgomery St., San Francisco
 Asbestos Textile Co., New York
 Aspromet Co., Pittsburgh
 Baltimore Roofing and Asbestos Mfg. Co., Asbestos, Md.
 Carey Co., Philip, Cincinnati
 Celite Products Co., 11 Broadway, New York
 Ehret Magnesia Mfg Co., Valley Forge, Pa.
 Franklin Mfg Co., The, Franklin, Pa.
 Insulex Insulation Co., Marquette Bldg., Chicago
 Johns-Manville Co., H. W., Madison Ave. & 41st St., New York
 Johns-Pratt Co., Hartford, Conn.
 Mikesell Bros. Co., N. La Salle St., Chicago
 National Magnesia Mfg Co., Red Wood City, Cal.
 Plant Rubber & Supply Co., 32 Beale St., San Francisco
 Pulner Equipment Co., Ry Exch. Bldg., Chicago
 Refractory Materials Co., 30 Church St., New York
 Strong Machinery & Supply Co., 21 Walker St., New York
 Waldo Bros., Inc., Boston
 Wilder Mfg. Co., St. Louis

STERLING-COOPER CO., NEW YORK

ASBESTOS COVERING

Adams Balcom Co., New Montgomery St., San Francisco
 Armstrong Cork & Insulation Co., 24th St., Pittsburgh
 Botfield-Specialties Mfg Co., S. Swanson St., Philadelphia
 Carey Co., Philip, Cincinnati
 Douglas & Co., Inc., Daniel, 257 Water St., New York
 Buhler Co., Edward E., 103 Park Ave., New York
 Ehret Magnesia Mfg Co., Valley Forge, Pa.
 Franklin Mfg. Co., The, Franklin, Pa.
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Livezey, John R., Market St., Philadelphia
 Morristown Magnesia & Asbestos Co., Morristown, Pa.
 Nat'l Air Cell Cover. Co., Henderson St., Jersey City, N. J.
 Nat'l Asbestos Mfg Co., Henderson St., Jersey City, N. J.
 Plant Rubber & Asbestos Wks, Brannon St., San Francisco
 Portland Stone Ware Co., Federal St., Boston
 Robert A. Keasbey Co., 445 West St., New York
 Rutland Fire Clay Co., Rutland, Vt.
 Standard Felt Co., West Alhambra, Cal.
 Stowe-Fuller Co., Cleveland
 Strocks, S. & Co., 11 East 26th St., New York
 Wallace & Gale, 115 Gay St., Baltimore, Md.

ASH, White (See Lumber, Hardwood)

ASH EJECTORS

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Cramp & Sons, Ship & Eng. Bldg. Co., Wm., The, Richmond & Norris Sts., Philadelphia
 Davidson Co., M. T., 154 Nassau St., New York
 Great Lakes Engineering Co., Detroit, Mich.
 Kerr Machinery Corp., Detroit, Mich.
 Marine Decking & Supply Co., Philadelphia, See p. 6
 Row & Davis, Engineers, Inc., 90 West St., New York,
 see p. 45
 Schutte & Koerting, 1174 Thompson St., Philadelphia
 Wright & Lacy, San Francisco

ASH HOISTS

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Ford & Geirrine, Merchant Exch. Bldg, San Francisco
 Great Lakes Engineering Co., 5 Nassau St., New York
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, s. p. 30
 Hyde Windlass Co., 2 Federal St., Bath, Maine
 Ingersoll-Rand Co., 11 Broadway, New York
 Lidgerwood Mfg Co., 96 Liberty St., New York
 Main Iron Works, San Francisco
 Marine Mfg & Supply Co., 158 South St., New York
 Mundy Hoisting Engine Co., J. S., Newark, N. J.
 Shipbuilding Products Mfg Co., 179 West St., New York
 Street Bros., Machine Works, Chattanooga, Tenn.
 Superior Iron Works, Superior, Wis.

ATOMIZERS, Fuel Oil

Atlantic Basin Iron Works, Brooklyn, N. Y.
 Babcock & Wilcox Co., The, 85 Liberty St., New York.
 See p. 7
 Best, Inc., W. N., 11 Broadway, New York
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Coen Co., The, San Francisco
 Moore Shipbuilding Co., San Francisco
 Peabody Engineering Corp, 331 Madison Av., New York,
 see p. 65
 Redington Standard Fittings Co., Bethlehem, Pa.
 Schutte & Koerting Co., Philadelphia
 Tate-Jones Co., Inc., Pittsburgh
 Todd Shipyards Corp, 15 Whitehall St., New York
 Worthington Pump & Machinery Corp, 115 Broadway,
 New York, see pp. 74-81

AUGERS, Ship

Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Greenlee Bros. Co., Rockford, Ill.
 Irvin Auger Bit Co., Wilmington, Ohio
 Jennings & Co., C. E., 71 Murray St., New York
 Millers Falls Co., Millers Falls, Mass.

Snell Mfg Co., Fishdale, Mass.
 Swan & Co., James, Seymour, Conn.

AVERAGE ADJUSTERS

(Consult Marine Insurance, Port Data Section)

AWNINGS (See Canvas Covers)**AXES, Fire**

Castle, J. M., Inc., Lincoln Bldg., Philadelphia

AZIMUTH INSTRUMENTS

Alford Mfg Co., Chelsea, Mass.
 Arma Engineering Co., 228 40th St., Brooklyn, N. Y.
 Berger & Sons, C. D., 57 William St., Boston
 Buff & Buff Mfg Co., Jamaica Plains, Mass.
 Chadburn Ship Telegraph Co. of America, Inc., Troy, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Jackson & Co., Wm. H., 335 Carroll St., Brooklyn, N. Y.
 Kelvin & Wilfrid O. White Co., 112 State St., Boston
 Keuffel & Esser Co., Hoboken, N. J.
 Makepeace, Inc., B. L., 387 Washington St., Boston
 Marine Compass Co., 253 Broadway, New York
 Mayer & Bros., Jos. T., Seattle
 Nautical Instrument Mfg Co., 47 West St., New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Reid & Pancoast, Inc., 315 Vine St., Philadelphia
 Rieker Instrument Co., 1921 Fairmount Av., Philadelphia
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Stoelting Co., C. H., 3037 Carroll Ave., Chicago
 Weule, Louis, San Francisco
 Young & Sons, 43 N. 7th St., Philadelphia

B**BABBITT METAL (See Anti-friction Metal)****BACK PRESSURE VALVES (See Valves, Subhead)****BADGES, Metal**

Knickerbocker Stencil Works, 81 Nassau St., New York
 Leonard Die & Seal Co., 522 South Clinton St., Chicago
 New York Stencil Works, 100 Nassau St., New York
 Standard Emblem Co., Times Square Bldg, New York
 U. S. Specialty Co., 200 Fifth Av., New York

BAFFLE WALLS, Boiler, Plastic

Betson Plastic Fire Brick Co., Rome, N. Y.
 Engineer Co., The, 17 Battery Place, New York
 Jointless Fire Brick Co., Chicago

BAGS, Coaling

Acme Burlap Bag Co., 89 Waterbury St., Brooklyn, N. Y.
 Alward, Anderson Southard Co., 925 W. Chicago Av.,
 Chicago
 Arnoff, J. J., Trenton, N. J.
 Curtin Corp., John, 71 Front St., New York
 Magee & Son., Inc., M., 138 Fulton St., New York
 Mills Sons, Andrew, Adams Av., Philadelphia
 Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14

BAILS, Lantern, Brass

Aldrich Mfg Co., Buffalo
 Atlantic Refining Co., Philadelphia
 Blickman, S., 199 Lafayette St., New York
 Galena Mfg Co., Galena, Ill.
 National Marine Lamp Co., 254 Pearl St., New York
 Rochester Headlight Works, Rochester, N. Y.
 Universal Metal Spinning & Stamp Co., 718 Atlantic Av.,
 Brooklyn, N. Y.
 Wakefield Brass Co., F. W., Vermillion, Ohio

BAIZE, Green

American Felt Co., 100 Summer Av., Boston
 Claflins, Inc., 224 Church St., New York
 Gottheimer & Co., L., 55 Worth St., New York
 Levinsky & Sons, S., 84 Canal St., New York

BAKE OVENS, Coal Burning and Spare Parts

Barth & Sons, L., 32 Cooper Square, New York
 Blickman, S., 199 Lafayette St., New York
 Bramhall Deane Co., 261 W. 36th St., New York
 Centre Fdry & Mach Co., Wheeling, W. Va.

Channon Emery Stove Co., Quincy, Ill., see p. 52
 Cummings Machine Co., Minster, Ohio
 Dohrmann Co., Nathan, San Francisco
 Dougherty & Sons, Inc., W. F., 925 Arch St., Philadelphia
 Globe Stove & Range Co., Kokomo, Ind.
 Gold Coin Stove & Fdry Co., Albany
 Hoos Co., John, 306 Hanover St., Baltimore
 Huenefeld Co., Cincinnati
 Interior Metal Mfg Co., Jamestown, N. Y.
 Joesting & Schilling Co., St. Paul, Minn.
 Lincoln Stove Co., Fremont, Ohio
 Pick Co., Albert, 208 W. Randolph St., Chicago
 Ransom, Barton Co., Philadelphia
 Simmons Hardware Co., Philadelphia
 Stolz & Son, Inc., Jos., 841 E. 136th St., New York
 Thorn Co., J. S., Philadelphia
 Walker & Pratt Mfg Co., 31 Union St., Boston

BAKE OVENS, Electric and Spare Parts

American Electrical Heater Co., Detroit, Mich.
 Dohrmann Co. Nathan, San Francisco
 Dougherty & Sons, Inc., W. F., 925 Arch St., Philadelphia
 Duparquet, Huot & Moneuse Co., 108 W. 22nd St., New York
 Edison Electric Appliance Co., Inc., Chicago
 Globe Stove & Range Co., Kokomo, Ind.
 Hoos Co., John, 306 Hanover St., Baltimore
 Interior Metal Mfg Co., Jamestown, N. Y.
 Pick & Co., Albert, Chicago
 Western Electric Co., 151 Fifth Av., New York

BAKELITE, Dielectro

Condensite Co. of America, Bloomfield, N. J.
 Continental Fibre Co., The, Newark, Del.
 Crown Electric Hot Pack Co., Philadelphia
 General Bakelite Co., 2 Rector St., New York
 Grether Fire Equipment Co., Dayton, Ohio
 Inso-Bake Specialty Co., Niagara Falls, N. Y.
 Latham & Co., E. B., 550 Pearl St., New York
 Shaw Insulator Co., 5 Kirk Place, Newark, N. J.

BAKERY EQUIPMENT

Barth & Son, L., 32 Cooper Square, New York
 Blickman, S., 199 Lafayette St., New York
 Born Steel Range Co., Cleveland
 Bramhall Deane & Co., 263 A. West 36th St., New York
 Burton Range Co., The, Cincinnati
 Clad, V. V., Philadelphia
 Dougherty & Sons, W. F., Philadelphia
 Falstrom, Tornquist Co., The, Passaic, N. J.
 Jaburg Bros., 10-14 Leonard St., New York
 Marine Works, 31 Coenties Slip, New York
 Pick & Co., Albert, Chicago
 Rudman & Scofield, 277 Pearl St., New York
 Sexton Stove & Mfg. Co., S. B., Baltimore
 Stearns Co., The, Chicago
 Union Steel Products Co., Ltd., Albion, Mich., See p. 2
 Van Range Co., John, Cincinnati
 Webb & Son Co., Elisha, Philadelphia
 (See also Bake Ovens, Coal & Electric)

BAKERY PROOFERS

Union Steel Products Co., Ltd., Albion, Mich., See p. 2
 (See also Bakery Equipment)

BALANCES, Sash

Caldwell Mfg Co., Rochester
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Pullman Mfg Co., Rochester

BALANCES, Spring

Buhl Sons, Inc., Detroit, Mich.
 Caldwell Mfg Co., Rochester
 Channon Mfg Co., James H., Chicago
 Chatillon & Son, John, 85 Cliff St., New York
 Computing Scales Co., Dayton, Ohio
 Connecticut Hardware Mfg Co., Bridgeport, Conn.
 Hibbard, Spencer, Bartlett & Co., Chicago
 Jacobs Bros. Co., 71 Warren St., New York
 Peck Stow & Wilcox Co., 46 W. Broadway, New York

Pullman Mfg. Co., Rochester
 Simmons Hardware Co., St. Louis, Mo.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

BALANCES, Torsion

Bausch & Lomb Optical Co., Rochester
 Fairbanks Co., 416 Broome St., New York
 Gaertner Co., Wm., Chicago
 Stoelting & Co., C. H., Chicago
 Torsion Balance Co., 92 Reade St., New York

BALANCING MACHINES

Carlson-Wenstrom Co., Philadelphia
 Vibration Specialty Company, Harrison Bldg., Philadelphia, See p. 3

BALANCING MACHINES, Dynamic & Static

Vibration Specialty Company, Harrison Bldg., Philadelphia, See p. 3

BALL BEARINGS

Auburn Ball Bearing Co., Rochester, N. Y.
 Ball & Roller Bearing Co., Danbury, Conn.
 Bantam Ball Bearing Co., The, Bantam, Conn.
 Bearings Co. of America, Lancaster, Pa.
 Cobbledeck Co., F. M., 693 Mission St., San Francisco
 Fafnir Bearing Co., The, New Britain, Conn.
 Federal Bearings Co., Poughkeepsie, N. Y.
 Graham Roller Bearing Co., Coudersport, Pa.
 Gurney Ball Bearing Co., Jamestown, N. Y.
 Gwilliam Co., The, 253 W. 58th St., New York
 Hess-Bright Mfg Co., Philadelphia
 Imperial Bearing Co., Detroit, Mich.
 New Departure Mfg Co., Bristol, Conn.
 Rochester Ball Bearing Co., 203 State St., Rochester, N. Y.
 S. K. F., Industries, 165 Broadway, New York
 Standard Roller Bearing Co., Philadelphia
 U. S. Ball Bearing Co., Chicago

BALL BEARINGS, Annular

Auburn Ball Bearing Co., Rochester, N. Y.
 Federal Bearings Co., Poughkeepsie
 Standard Roller Bearing Co., Philadelphia

BALL BEARINGS, Thrust

Auburn Ball Bearing Co., Rochester, N. Y.
 Graham Roller Bearing Co., Coudersport, Pa.
 Gwilliam Co., The 253 W. 58th St., New York

BALL BEARINGS, Universal

Federal Bearing Co., Poughkeepsie, N. Y.
 S. K. F. Industries, Inc., 165 Broadway, New York

BALLAST, Iron

Fairhaven Iron Foundry Co., Fairhaven, Mass.
 Kings County Iron Foundry Co., Brooklyn, N. Y.
 Levering Bros., 200 Key Highway, Baltimore

BALLS, Bronze

Abbott Ball Co., Hartford, Conn.
 American Ball Co., Providence, R. I.
 Art Metal Works, Newark, N. J.
 Auburn Ball Bearing Co., Rochester, N. Y.
 Bantam Ball Bearing Co., Bantam, Conn.
 Draper Mfg Co., Port Huron, Mich.
 Excelsior Steel Ball Co., Buffalo
 Fulton Mfg Co., Toledo, Ohio
 Grammes & Sons, L. F., Allentown, Pa.
 Gwilliam Co., The, 253 W. 58th St., New York
 Haring, Ellsworth, 114 Liberty St., New York
 Hoover Steel Ball Co., Ann Arbor, Mich.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Jones Ball Co., Arlington Heights, Mass.

Novelty Mfg Co., Waterbury, Conn.

Phosphor Bronze Smelting Co., 200 Washington Av., Philadelphia

Proctor Co., Inc., S. Eugene, 158 State St., Boston

BALLS, Float, Copper, Brass Stem

American Brass & Cop. Co., 138 Lafayette St., New York
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Eynon-Evans, Philadelphia
 Federal Huber Co., 234 North Halstead St., Chicago

Glauber Brass Mfg Co., Superior Av., Cleveland
 Humphreys Mfg. Co., Mansfield, Ohio
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

McCambridge Co., 315 N. 20th St., Philadelphia
 Mott Iron Works, J. L., Trenton, N. J.
 Naugatuck Mfg Co., Naugatuck, Conn.
 Sands & Son, A. B., 20 Vesey St., New York
 Standard Tank & Seat Co., Camden, N. J.
 Wolverine Brass Works, Grand Rapids, Mich.

BALLS, Float, Rubber, Brass Stem

American Foundry & Mfg Co., St. Louis, Mo.
 American Hard Rubber Co., 11 Mercer St., New York
 Camden Pottery Co., Camden, N. J.
 Canfield Rubber Co., Bridgeport, Conn.
 Columbus Brass Co., Columbus, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Federal Huber Co., 234 North Halstead St., Chicago
 Globe Brass Mfg Co., Philadelphia
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

Keystone Pottery Co., Trenton, N. J.
 Mott Iron Works, J. L., Trenton, N. J.
 Sands & Son, A. B., 20 Vesey St., New York

BALLS, Steel (See Also Ball Bearing Mfrs)

Abbott Ball Co., Elmwood, Conn.
 American Ball Co., Providence, R. I.
 Excelsior Steel Ball Co., Buffalo
 Gwilliam Co., The, 253 W. 58th St., New York
 Haring, Ellsworth, 114 Liberty St., New York
 Hoover Steel Ball Co., Ann Harbor, Mich.
 Jones Ball Co., Elmwood, Conn.
 Montgomery & Co., Inc., 105 Fulton St., New York
 S. K. F. Industries, Inc., 165 Broadway, New York
 Strom Steel Ball Co., Oak Park, Ill.

BALLS, Steel, Large for Valves

Draper Mfg Co., Port Huron, Mich.

BALSA WOOD

American Balsa Co., 50 E. 42d St., New York
 Ford & Geirrine, Merchants' Exch. Bldg, San Francisco

BAMBOO

Arnold Harberg & Co., 31 State St., Boston
 Deltour, Inc., J., Hoboken, N. J.
 Far East Importing Co., Inc., 76 Wall St., New York

BARGES

Southland Steamship Co., Savannah, Ga., see p. 101
 (See also Shipbuilding Section)

BARIUM, Dioxide

Atlantic Chemical Co., 50 Congress St., Boston
 Baker Chemical Co., J. T., Phillipsburg, N. J.
 Denver Fire Clay Co., The, Denver, Col.
 Hachmeister Lind Chemical Co., Pittsburgh
 Huron Chemical Co., 51 Bergen St., Brooklyn, N. Y.
 Lehn & Fink, 635 Greenwich St., New York
 Naylor & Co., Inc., 120 Broadway, New York
 Rollin Chemical Co., Charleston, W. Va.
 Toch Bros., 320 Fifth Av., New York

BAROMETERS, Mercurial

Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Hand & Sons Co., Inc., J. E., 208 Chestnut St., Philadelphia
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Philadelphia Thermometer Co., Philadelphia
 Precision Thermometer & Instrument Co., Philadelphia
 Tagliabue Mfg Co., Chas. J., 18 33d St., Brooklyn, N. Y.
 Taylor Instrument Co., Rochester, N. Y.
 Uehling Instrument Co., 71 Broadway, New York

BARS, Boring (See Boring Bars)

BARS, Brass, Bronze, Copper, Steel, Etc.

(See Brass Bars, Bronze Bars, etc.)

BARS, Chisel, Crow & Pinch

Anderson Supply Co., N. H., Detroit
 Beady Axe & Tool Co., G. W., Jersey City, N. J.
 Beall Bros., East Alton, Ill.

Blanche Co., L. C., 10 Thomas St., New York
 Carlan St. Prod. Co., Commercial Trust Bldg., Philadelphia
 Carver Tool Works, Spring Valley, N. Y.
 Channon Mfg Co., James H., 227 W. Erie St., Chicago
 Cincinnati Tool Co., Norwood, Cincinnati
 Cleveland Steel Tool Co., 660 E. 82d St., Cleveland
 Crescent Tool Mfg Co., 100 Cass Av., St. Louis, Mo.
 Diener Mfg Co., G. W., Kinzie & Monticello Av., Chicago
 Fairbanks Co., 416 Broome St., New York
 Hammacher, Schlemmer & Co., 133 Fourth Av., New York
 Handlan Buck Mfg Co., 212 N. 3d St., St. Louis, Mo.
 Iron City Tool Works, Pittsburgh
 Irvington Mfg Co., The, Irvington, N. J.
 Kemp Machinery Co., 223 N. Calvert St., Baltimore
 Klein-Logan Co., 74 Murray St., New York
 New England Tool Co., Boston
 O'Leary & Sons, A. J., 575 W. 65th St., Chicago
 Oliver Iron & Steel Co., Pittsburgh
 Warner Hammer Co., Warner, Conn.
 Warren Tool & Forge Co., Warren, Ohio
 Warwood Tool Co., Wheeling, W. Va.
 Verona Tool Works, Oliver Bldg., Pittsburgh
 Vulcan Tool Co., Quincy, Mass.

BARS, Copper (See Copper, Rods & Bars)

BARS, Flinders

Keuffel & Esser, Hoboken, N. J.
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22

BARS, Grate (See Grate Bars)

BARS, Reinforce, Concrete

American Steel & Wire Co., Chicago
 Atlantic Steel Co., Atlanta, Ga.
 Carnegie Steel Co., Pittsburgh
 Concrete Steel Co., 42 Broadway, New York
 Franklin Steel Works, Franklin, Pa.
 Llewellyn Iron Works, Los Angeles, Cal.
 Republic Iron & Steel Co., 17 Battery Place, New York
 Ryerson & Son, Jos. T., Chicago
 Truscon Steel Co., Youngstown, Ohio
 Trussed Concrete Steel Co., 110 W. 40th St., New York

BARS, Scaling

Anderson Supply Co., N. H., Detroit, Mich.
 Cincinnati Tool Co., Norwood, Cincinnati
 Cutter & Wood Supply Co., 68 Pearl St., Boston
 Irvington Mfg Co., The, Irvington, N. J.
 Klein-Logan Co., 74 Murray St., New York
 Ulchek Tool Co., Quincy Av., Cleveland
 Vulcan Tool Co., Quincy, Mass.
 Warren Tool & Forge Co., Warren, Ohio

BARS, Slice, Steel (Die Products Only)

McKay Co., Jas., Pittsburgh
 McKinnon Iron Works, The, Ashtabula, Ohio
 (See also Fire Tools, Boiler)

BASINS, Wash, Cast Iron (Porcelain Lined) & Copper

American Foundry & Mfg Co., St. Louis, Mo.
 Blickman, S., 199 Lafayette St., New York
 Clow & Sons, J. B., 47 W. 34th St., New York
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Curtiss Co., Inc., The, J. H., 2 South St., New York
 Ebinger Sanitary Mfg Co., D. A., Columbus, Ohio
 Federal Huber Co., Chicago
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

McCambridge Co., Philadelphia

Mott Iron Works, J. L., Trenton, N. J.

Nat'l Metal Spinning & Stamping Co., 176 Grand St.,
 New York

National Pottery Co., Evansville, Ind.

Park & McKay Co., Detroit, Mich.

Peck Bros. Co., New Haven, Conn.

Sands & Son Co., A. B., 20 Vesey St., New York

Standard Tank & Seat Co., Camden, N. J.

Walker Mfg & Supply Co., Detroit, Mich.

BASKETS, Coaling

Bailic Basket Co., 82 Sudbery St., Boston
 Butler Basket Co., Butler, Ind.
 Canisteo Woodenware Co., Canisteo, N. Y.
 Eastern States Packing Co., Buffalo

STERLING-COOPER CO., NEW YORK

Heywood Bros. & Wakefield Co., 516 W. 34th St., New York

Metallic Basket Co., Rochester, N. Y.
Steel Basket Co., Cedar Rapids, Iowa
Telescope Cot Bed Co., 535 E. 79th St., New York
Topping Bros., 122 Chambers St., New York
Williams Mfg Co., Northampton, Mass
(See also Ship Chandlers, Port Data Section)

BASKETS, Wire, Dishwashing Machine, etc.

Andrew Wire & Iron Works, Rockford, Ill.
Audubon Wire Cloth Co., Audubon, N. J.
Barbee Wire & Iron Works, Lafayette, Ind.
Barth & Son, L., 32 Cooper Square, New York
Blickmann, S., 199 Lafayette St., New York
Bramhall Deane Co., 261 W. 36th St., New York
Clad, V. V., 217 So. 11th St., Philadelphia
Meyers Co., F. G., Hamilton, Ohio
Morgan Spring Co., Worcester, Mass.
Peerless Wire Goods Co., Lafayette, Ind.
Penn Art Steel Works, Erie, Pa.
Pick & Co., Albert, Chicago
Solar Metal Products Co., 233 Broadway, New York
Union Steel Products Co., Ltd., Albion, Mich., See p. 2
Van Range Co., John, Cincinnati
Watkins & Son, Jas. Y., 16 Catherine St., New York

BATH MATS (See Linen & Towelling Supplies, Rubber Matting)

BATH TUBS

Clow & Sons, Jas. B., Chicago
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Douglass Co., John, Cincinnati
Federal Huber Co., Chicago
Haines, Jones & Cadbury, 1136 Ridge Av., Philadelphia
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
Keating & Co. E. F., 446 Waters St., New York
Kokomo Sanitary Mfg Co., Kokomo, Ind.
McCambridge Co., 315 N. 20th St., Philadelphia
Messer Co., William, 27 Suffolk St., New York
Mott Iron Wks, J. L., Trenton, N. J.
Standard Sanitary Mfg Co., Pittsburgh
Sands & Son, A. B., 20 Vesey St., New York
Sanitas Mfg Co., 48 Union St., Boston
Walker Mfg & Supply Co., Detroit, Mich.

BATTERIES, Dry

American Every-Ready Works, Long Island City, N. Y.
Bright Star Battery Co., 316 Hudson St., New York
Burgess Battery Co., Madison, Wis.
French Battery & Carbon Co., Madison, Wis.
Interstate Electric Novelty Co., 104 S. 4th St., Bklyn, N. Y.
Manhattan Electric Supply Co., 17 Park Place, New York
Johns-Manville Co., H. W., Madison Av. & 41st St., New York
National Carbon Co., Cleveland
Nungesser Electric Battery Co., Cleveland
Simmons Hardware Co., Philadelphia
Western Electric Co., 151 Fifth Av., New York
(See also Ship Chandlers, Port Data Section)

BATTERIES, Flashlight

American Ever-Ready Works, Long Island City, N. Y.
Anglo-American Co., 717 New Grant St., Pittsburgh
Bright Star Battery Co., 316 Hudson St., New York
Burgess Battery Co., Madison, Wis.
French Battery & Carbon Co., Madison, Wis.
Hipwell Mfg. Co., 825 North Av., Pittsburgh
Interstate Electric Novelty Co., 104 S. 4th St., Bklyn, N. Y.
Peerless Light Co., Chicago
Solar Light Co., 69 Wooster St., New York
Stuart Products Corp., Chicago
Usona Mfg Co., 309 S. St. Clair St., Toledo, Ohio
(See also Ship Chandlers, Port Data Section)

BATTERIES, Storage

Edison Storage Battery Co., Orange, N. J.
Electric Storage Battery Co., Philadelphia
General Lead Battery Co., Newark, N. J.
Gould Storage Battery Co., 30 E. 42d St., New York
Philadelphia Stor. Bat. Co., Ontario & C. Sts., Philadelphia

U. S. Light & Heat Corp, Niagara Falls, N. Y.
Willard Storage Battery Co., Cleveland
Witherbee Storage Battery Co., 649 W. 43d St., New York

BATTERY CHARGING APPARATUS

Allen Bradley Co., 286 Greenfield Av., Milwaukee, Wis.
Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
General Electric Co., Schenectady, N. Y., see pp. 36-41
Lincoln Electric Co., Cleveland
Useum Co., 505 W. 42d St., New York

BEAMS & CHANNELS (See Steel Angles)

BEARING METAL (See Anti-Friction Metal)

BEARINGS, Ball (See Ball Bearings)

BEARINGS, Bronze (See Bushings, Bronze & Brass)

BEARINGS, Line & Propeller Shaft

Alabama D. D. & Shipbuilding Co., Philadelphia
American Shipbuilding Co., The, Cleveland
Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
Cramp & Sons, Ship & Eng. Bldg. Co., Wm., Philadelphia
Great Lakes Engineering Works, 5 Nassau St., New York
Hardie Tynes Mfg Co., Birmingham, Ala.
Llewellyn Iron Works, Los Angeles, Cal.
Magnus Co., 860 N. Main St., Los Angeles, Cal.
Mesta Machine Co., Pittsburgh
Seattle Machine Works, Seattle, Wash.
Todd Shipyards, Inc., 15 Whitehall St., New York

BEARINGS, Roller

Ball & Roller Bearing Co., Danbury, Conn.
Graham Roller Bearing Co., Coudersport, Pa.
Gwilliam Co., The, 253 W. 58th St., New York
Hart Roller Bearing Co., The, Orange, N. J.
Hyatt Roller Bearing Co., 6th Av. & 41st St., New York
Standard Roller Bearing Co., Philadelphia

BEARINGS, Stern Tube

Baltimore D. D. & Shipbuilding Co., Baltimore
Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
Columbian Bronze Corp, 522 Fifth Av., New York, see p. 72
Cramp & Sons, Ship & Eng. Bldg. Co., Wm., Philadelphia
Eagle Brass Foundry Co., 2 Spokane St., Seattle, Wash.
Fletcher Co., W. & A., Hoboken, N. J.
Hardie-Tynes Mfg Co., Birmingham, Ala.
Mesta Machine Co., Pittsburgh
Oregon Brass Works, Portland, Ore.
Todd Shipyards Corp, 15 Whitehall St., New York

BEARINGS, Thrust, Main

Baltimore D. D. & Shipbuilding Co., Baltimore
Bath Iron Works, Ltd., Bath, Me.
Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
Cramp & Sons Ship & Eng. Bldg. Co., The Wm., Philadelphia
Fletcher Co., W. & A., Hoboken, N. J.
Hooven, Owens, Rentschler Co., The, Hamilton, Ohio, see pp. 84-91
Kingsbury, Albert, Engineer, Oliver Bldg., Pittsburgh, See pp. 4 & 5
Llewellyn Iron Works, Los Angeles, Cal.
Moore Shipbuilding Co., Oakland, Cal.
New York Shipbuilding Corp, Camden, N. J.
Todd Shipyards, Inc., 15 Whitehall St., New York
Vulcan Iron Works, Inc., Jersey City, N. J.

BEARINGS, Thrust, Turbine & Engine

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Bath Iron Works, Ltd., Bath, Me.
Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
De Laval Steam Turbine Co., Trenton, N. J., see pp. 106 & 107
Fletcher Co., W. & A., Hoboken, N. J.
Ingersoll-Rand Co., 11 Broadway, New York
Kerr Turbine Co., Wellsville, N. Y.
Kingsbury, Albert, Engineer, Oliver Bldg., Pittsburgh, See pp. 4 & 5

McIntosh & Seymour Corp, Auburn, N. Y.
 Marine Iron Works, Chicago
 Midwest Engine Co., Indianapolis, Ind.
 Moore Steam Turbine Corp, Philadelphia
 Ridgway Dynamo & Engine Co., The., Ridgway, N. J.
 Skandia Pacific Oil Engine Co., Oakland, Cal.
 Vulcan Iron Works, Inc., Jersey City, N. J.
 Weinman Pump Manufacturing Co., Columbus, Ohio
 Westinghouse Elec & Mfg Co., Pittsburgh

BED SPREADS (See Linen & Towelling)**BEDPLATES (Consult Engine Mfrs.)**

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100

Hooven, Owens, Rentschler Co., The, Hamilton, Ohio,
 see pp. 84-91

New London Ship & Engine Co., Groton, Conn., see p. 34
 Worthington Pump & Machinery Corp, 115 Broadway,
 New York, see pp. 74-81

BEDS (See Berths)**BEECH (See Lumber, Hardwoods)****BEESWAX**

General Platers Supply Co., 489 Broome St., New York
 Greig, John, 39 Cortlandt St., New York
 Knox & Morse, 96 High St., Boston
 Shoemaker & Busch, 515 Arch St., Philadelphia
 (See also *Ship Chandlers, Port Data Section*)

BELLOWS, Foundry

Bullock, Mfg Co., Cleveland
 Christian Bellows & Mfg Co., St. Louis, Mo.
 Cutler & Woods Supply Co., 68 Pearl St., Boston
 Fairbanks Co., 416 Broome St., New York
 Handlan Buck Mfg Co., St. Louis, Mo.
 Hill Brunner Fdry Supply Co., Cincinnati
 McCormick Co., J. S., Pittsburgh
 Manning Maxwell & Moore, 119 W. 40th St., New York
 Osborn Mfg Co., Cleveland
 Paxon & Co., J. W., Philadelphia
 Shapleigh Hardware Co., St. Louis, Mo.
 Whiting Fdry Equipment Co., Harvey, Ill.

BELLS, Electric, Vibrating, Non-watertight

American Safety Lamp & Mine Co., Scranton, Pa.
 Ansonia Electric Co., Ansonia, Conn.
 Arnessen Electric Co., 109 Broad St., New York
 Benjamin Electric & Mfg Co., Chicago
 Central Electric Co., Chicago
 Holtzer-Cabot Electric Co., 122 Amory St., Boston
 Klaxon Co., Industrial Div., 1 Madison Av., New York
 Leich Electric Co., Genoa, Ill.
 Manhattan Electric Supply Co., 17 Park Place, New York
 Meade Electric Signal Co., Cleveland
 Ostrander & Co., W. R., 371 Broadway, New York
 Pittsburgh Electric & Mach Co., Pittsburgh
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

Western Electric Co., 151 Fifth Av., New York
 Wetmore & Savage Co., 76 Pearl St., Boston

BELLS, Electric, Vibrating, Watertight

Benjamin Electric Mfg Co., Chicago
 Butte Electric & Mfg Co., San Francisco
 Cory & Son, Chas., King & Varick Sts., New York
 Marine Electric Co., San Francisco
 Reeve, Henry E., 459 Carroll St., Brooklyn, N. Y.

BELLS, Fog

Gray-Hawley Mfg Co., Detroit, Mich.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Nathan Mfg Co., Flushing, L. I., N. Y.
 National Marine Lamp Co., 254 Pearl St., New York
 Richard & Gardner Co., Frank, 47 South St., New York
 Williams & Son, E. A., Jersey City, N. J.

BELLS, Jingle & Signal (See Gongs)**BELLS, Motor Boat**

Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Dusen & Co., E. W., Cincinnati
 Laughlin Co., Thos., The, Portland, Me.
 McShane Bell & Fdry Co., Baltimore

Marine Mfg & Supply Co., 158 South St., New York
 Meneely Bell Co., 198 Broadway, New York
 Star Bros. Bell Co., E. Hampton, Conn.
 Wilcox Crittenden & Co., Middletown, Conn.
 Williams & Son, E. A., Jersey City, N. J.
 (See also *Ship Chandlers, Port Data Section*)

BELLS, Ship

Bevin Bros. Mfg Co., East Hampton, Conn.
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Kirk Habicht Co., 108 S. Calvert St., Baltimore
 McShane Bell Fdry Co., Baltimore
 Marwedel, C. W., San Francisco
 Meneely Bell Co., 198 Broadway, New York
 Oregon Brass Works, Portland, Ore.
 Van Dusen Co., E. W., Cincinnati
 Wilcox, Crittenden & Co., Middletown, Conn.

BELT DRESSING

Bradford Belting Co., Cincinnati
 Chicago Belting Co., Chicago
 Cling-Surface Co., 1032 Niagara St., Buffalo
 Duryea Mfg Co., Bayonne, N. J.
 Ensign Refining Co., Cleveland
 Groton & Knight Mfg Co., Worcester, Mass.
 Jewell Belting Co., Hartford, Conn.
 Ladew Co., Inc., Edw. R., 428 Broadway, New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Williams, Wm. E., 62 Front St., New York

BELT LACING

American Lace Leather Co., Richmond, Va.
 Chicago Rawhide Mfg Co., The, Elston Av., Chicago
 Clipper Belt Lacer Co., Grand Rapids, Mich.
 Groton & Knight Mfg Co., Worcester, Mass.
 Greene Tweed & Co., 109 Duane St., New York
 Herberts Machinery Co., 168 2d St., San Francisco
 Ladew Co., Inc., Edw. R., 428 Broadway, New York
 Schieren Co., Chas. A., 30 Ferry St., New York
 (See also *Lacing, Belt, Rawhide & Metallic*)

BELTING, Conveyor

Duryea Mfg Co., Bayonne, N. J.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Co., B. F., Akron Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
 Imperial Belting Co., Chicago
 Manhattan Rubber Mfg Co., Passaic, N. J.
 New York Rubber Co., Philadelphia
 Quaker City Rubber Co., Philadelphia
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Victor Balata & Textile Belting Co., 33 Murray St., New
 York

BELTING, Leather

Albany Belting & Supply Co., Albany, N. Y.
 Bailey-Lebby Co., Charleston, S. C.
 Central Belting Co., 151 Lafayette St., New York
 Chicago Belting Co., Chicago
 Cincinnati Rubber Mfg. Co., Cincinnati
 Feldmann, C. R., 435 W. 41st St., New York
 Grafton & Knight Mfg Co., Worcester, Mass.
 Jewell Belting Co., Hartford, Conn.
 Ladew Co., Inc., E. R., 428 Broadway, New York
 Laurence Belting Co., 111 Chambers St., New York
 Nat'l Leather Belting Co., 342 E. 38th St., New York
 New York Leather Belting Co., 428 Broadway, New York
 Page Belting Co., 258 Broadway, New York
 Philadelphia Belting Co., Philadelphia
 Rahmann & Co., Geo., 31 Spruce St., New York
 Raniville Co., F., Grand Rapids, Mich.
 Rhodes & Sons, J. E., Philadelphia
 Schieren Co., Charles A., 30 Ferry St., New York
 Sikes Co., S. R., Minneapolis, Minn.
 Sterling Leather Co., 148 Spring St., New York
 Western Rawhide & Belting Co., Milwaukee, Wis.
 Williams & Sons, I. B., Dover, N. H.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

BELTING, Rubber

Belmont Pack. & Rub. Co., Frankford Junc., Philadelphia
 Cincinnati Rubber Mfg Co., The, Cincinnati
Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Rubber Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 N. Y. Rubber Co., 84 Reade St., New York
 Ohio Rubber Co., The, Cleveland
 Quaker City Rubber Co., Philadelphia
United States Rubber Co., 1790 Broadway, New York, see p. 57
 Voorhees Rubber Mfg Co., The, Jersey City, N. J.

BELTING, Textile

Agrippa Mfg Corp, 149 Broadway, New York
 Belmont Packing & Rubber Co., Philadelphia
 Duryea Manufacturing Co., Bayonne, N. J.
 Gilmer Co., L. H., Philadelphia
 Russell Mfg Co., The, Middletown, Conn.
 Scandinavia Belting Co., 106 Reade St., New York
 Stanley Belting Corp, 32-40 South Clinton St., Chicago
 Victor Balata & Textile Belting Co., 38 Murray St., New York

BELTS, Diving (See Diving Equipment)**BELTS, Life (See Life Belts & Jackets)****BENDERS, Pipe & Tube**

American Marine Iron Works, Portland, Ore.
 American Pipe Bending Machine Co., Pearl St., Boston
 Bernz, Otto, Newark, N. J.
 Cox Engrg & Tube Bending Mach. Co., Bayonne, N. J.
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Ford & Geirrine, San Francisco
 National Tube Co., Pittsburgh
New Process Pipe & Tube Bending Co., 577 So. 10th St., Newark, N. J.
 Pedrick Tool & Mach. Co., 3640 N. Lawrence St., Philadelphia
 Riverside Machine Co., Chester, Pa.
 Standard Engineering Co., Ellwood City, Pa.
 Starbuck & Son., R. M., Hartford, Conn.
 Watson-Stillman Co., 50 Church St., New York

BENDERS, Ship Frame

Prentiss & Co., Inc., Henry, 149 Broadway, New York
 Southwark Fdry & Mach. Co., Philadelphia
 Watson-Stillman Co., 50 Church St., New York

BENDING & STRAIGHTENING MACHINES

Camden Forge Co., Camden, N. J.
 Cleveland Punch & Shear Works Co., Cleveland
 Heppenstall Forge & Knife Co., Pittsburgh
 Henes, Louis G., San Francisco
 Hilles & Jones Co., Wilmington, Del.
 Kling Bros. Engineering Works, Chicago
 Machine Tool Engineering Co., 149 Broadway, New York
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pollak Steel Co., Cincinnati
 Ryerson & Son., Jos. T., Chicago
 Southwark Fdry & Mach Co., Philadelphia

BENDING ROLLS, Plate

Cleveland Punch & Shear Works, Cleveland
 Hendley & Whitmore, Beloit, Wis.
 Hilles & Jones, Wilmington, Del.
 Kling Bros. Engineering Works, Chicago
 Long & Alstatter Co., Hamilton, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York
 Southwark Fdry & Mach Co., Philadelphia
 United Engineering & Foundry Co., Pittsburgh
 Wickes Bros., Saginaw, Mich.

BENDING ROLLS, Sheet Metal

Bliss & Co., E. W., Brooklyn, N. Y.
 Niagara Machine & Tool Wks, Buffalo
 Niles-Bement-Pond Co., 111 Broadway, New York
 Robinson Mfg Co., The J. M., Cincinnati

BENDING SLABS

Bausch Machine Tool Co., 119 W. 40th St., New York

BERTHS & BUNKS & BEDS

Art Bedstead Co., 37th & Rockwell Sts., Chicago
 Bent Co., G. W., 93 Causeway St., Boston
 Bernstein Mfg Co., 3d & Allegheny Av., Philadelphia
 Foster Bros. Mfg Co., Utica, N. Y.
 Gosso Co., The, 14 E. Jackson St., Chicago
 Greater N. Y. Cabinet Bed Co. (beds only), Bklyn, N. Y.
 Haggard & Marcusson Co., 1109 W. 37th St., Chicago
 Hall & Co., Frank A (beds only), New York
 Hard Mfg Co., Buffalo
 Mersereau Metal Bed Co., Jersey City, N. J.
 National Spring Bed Co., New Britain, Conn.
 Simmons Co., The, (beds only), Kenosha, Wis.
 Southern-Rome Co., Baltimore

BEVELS, Sliding T or Double Tongue

Chandler & Farquhar Co., Boston
 Machinists' Supply Co., Pittsburgh
 Sargent & Co., 94 Reade St., New York

BINNACLES

Bliss & Co., Jno., 128 Front St., New York
 Boehmke Optical Co., 827 Spring Garden Co., Philadelphia
 Chadburn Ship Telegraph Co. of America, Troy, N. Y.
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Hamilton & Hansell, Inc., 13 Park Row, New York
 Hand & Son Co., Jno. E., Haddonfield, N. J.
 Kelvin & Wilfrid O. White Co., 112 State St., Boston
 Makepeace, Inc., B. L., 387 Washington St., Boston
 Mayer & Bros., Jos., P. O. Box 1914, Seattle, Wash.
 Morrison & Sons, Frank, 1330 W. 11th St., Cleveland
 Nautical Instrument Mfg Co., 47 West St., New York
 Riggs & Bros. Co., Philadelphia
Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Sherman, Eugene M., Bellevue, Wash.
 Star Compass Co., 120 Woodrow Av., Dorchester, Mass.
 Stoelting, Co., C. H., 3037 Carroll Av., Chicago
 Weule Co., Louis, 6 California St., San Francisco

BINOCULARS, Day, Night & Prismatic

Bausch & Lomb Optical Co., Rochester, N. Y.
 Globe Optical Co., 403 Washington St., Boston
 Goerz American Optical Co., C. P., 317 E. 34th St., New York

Lietz Co., A., San Francisco
 Nautical Instrument Mfg Co., 47 West St., New York
 Negus, T. S. & J. D., 140 Water St., New York
 Pinkham & Smith Co., 292 Boylston St., Boston
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Rieker Instrument Co., 1304 Arch St., Philadelphia
 Warner & Swazey Co., Cleveland
 Weule Co., Louis, 6 California St., San Francisco

BIRCH (See Lumber, Hardwoods)**BITS, Augur Type**

Connecticut Valley Mfg Co., Centerbrook, Conn.
 Crerar, Adams & Co., Chicago
 Forrest City Bit & Tool Co., Rockford, Ill.
 Greenlee Bros. & Co., Rockford, Ill.
 Irvin Augur Bit Co., Wilmington, Ohio
 Irvington Mfg Co., The, Irvington, N. J.
 Ives Mfg Co., W. A., Wallingford, Conn.
 Lebanon Machine Co., Lebanon, N. H.
 Millers Falls Co., Millers Falls, Mass.
 New England Tool Co., Boston
 Russell Jennings Mfg Co., Chester, Pa.
 Shapleigh Hardware Co., St. Louis, Mo.
 Walls Tool & Supply Co., Inc., T. P., 25 Leonard St., New York

BITS, Countersink, Rose Type, Gimlet, Double Cut Type, Screw Driver Type

Buck Bros. Co., Millbury, Mass.
 Cincinnati Tool Co., Cincinnati
 Fairbanks Co., 416 Broome St., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Hammacher Schlemmer & Co., 133 Fourth Av., New York
 Holt Co., G. L., Hartford, Conn.
 Jennings & Co., C. E., New Haven, Conn.
 Progressive Mfg Co., The, Torrington, Conn.

Sargent & Co., 94 Center St., New York
 Star Bit & Tool Co., Rockford, Ill.
 Swan & Co., James, Seymour, Conn.
 Tuck Manufacturing Co., Brockton, Mass.

BITTS

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa.,
 see p. 100
 Cramp & Sons, Ship & Eng. Bldg., Co., Wm., Philadelphia
 Doud-MacFarlane Machy Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Great Lakes Engineering Co., 5 Nassau St., New York
 Hyde Windlass Co., Bath, Me.
 Main Iron Works, San Francisco
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Phila-
 delphia, see p. 18
 Thacher Propeller & Fdry Co., Albany, N. Y.
 Todd Shipyards Corp, 15 Whitehall St., New York
 Ulster Foundry Co., Kingston, N. Y.

BITUMINOUS COATINGS (See Paints)**BLACK DROP, Dry & in Oil (See Paints)****BLANC, Dry and in Oil (See Paints)****BLANKETS, Woolen**

Alley & Co., E. E., 256 Church St., New York
 American Felt Co., Boston
 American Woolen Co., Boston
 Baker Linen Co., H. W., 41 Worth St., New York
 Clinton Woolen Mfg Co., Clinton, Mich.
 Eastern Mfg Co., 576 Broadway, New York
 Ellis & Sons, A. D., Monson, Mass.
 Faribault Woolen Mill Co., Faribault, Minn.
 Hinsdale Woolen Mills, Boston
 Hirsch, Cal & Sons Mer. Co., 108 W. 40th St., New York
 Kent, Thomas Mfg Co., Clifton Heights, Pa.
 Middlesex Company, Lowell, Mass.
 Northern Textile Co., 5 Thomas St., New York
 Orr Felt & Blanket Co., Piqua, Ohio
 Talbot Mills Co., North Billerica, Mass.
 U. S. Textile Co., Philadelphia
 Warrenton Woolen Co., Torrington, Conn.
 Worcester Woolen Mills, Worcester, Mass.

BLINKERS, Tube, Portable

Arneson Electric Co., 109 Broad St., New York
 Blickman, S., 199 Lafayette St., New York
 Bunnell & Co., J. H., 32 Park Place, New York
 Butte Engineering & Electric Co., San Francisco
 Carlisle & Finch Co., The, Cincinnati
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Findlay Manufacturing Co., Rob., 224 Fifth Av., New York
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Philadelphia Elec. Sup. Co., 1236 N. 31st St., Philadelphia
 Russell & Stoll Co., 17 Vandewater St., New York
 St. Louis Brass Manufacturing Co., St. Louis, Mo.
 Wakefield Brass Co., F. W., The, Vermillion, Ohio
 Williamson & Co., R., 601 Washington St., Chicago

BLOCKS, Differential (with Chain)

Box & Co., Inc., Alfred, Philadelphia
 Canton Foundry & Machine Co., Canton, Ohio
 Channon Mfg Co., Jas. H., Chicago
 Chisholm-Moore Mfg Co., Cleveland
 Coburn Trolley Track Mfg Co., Holyoke, Mass.
 Cummings Machine Co., Minster, Ohio
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Ford Chain Block Co., Philadelphia
 Ford & Geirrine, San Francisco
 Franklin Moore Co., The, Winsted, Conn.
 Harrington Son & Co., Inc., Edwin, Philadelphia
 Hesse-Martin Iron Works, Portland, Ore.
 Hobbs Co., Clinton E., Boston
 Newhall Chain Forge & Iron Co., 90 West St., New York
 N. J. Foundry & Machine Co., 90 West St., New York
 Niles-Bement-Pond Co., 111 Broadway, New York
 Parish Supply & Mfg Co., Chicago

Reading Chain & Block Corp, Reading, Pa.
 Richards-Wilcox Mfg Co., Aurora, Ill.
 Ryerson & Son, Jos. T., Chicago
 Salisbury Fdry & Machine Co., Salisbury, Md.
 Speidel, J. G., Reading, Pa.
 Wright Mfg Co., Lisbon, Ohio
 Yale & Towne Mfg Co., Stamford, Conn.

BLOCKS, Swage (See Swage Blocks)**BLOCKS, Tackle**

American Hoist & Derrick Co., St. Paul, Minn.
 American Pulley Co., Philadelphia
 Bacon & Matheson Forge Co., Seattle, Wash.
 Boston & Lockport Block Co., Boston
 Carpenter & Co., George B., Chicago
 Channon Mfg Co., Jas. H., Chicago
 Cleveland Block Co., Cleveland.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Eureka Tackle Block Mfg Co., Cincinnati
 Fischer & Hayes Rope Co., Chicago
 Fulton Iron Works, Detroit, Mich.
 Galbraith & Sons, C. C., 90 West St., New York
 Gloucester Block Co., Gloucester, Mass.
 Hill Clutch Co., Cleveland
 Hunt Co., Inc., C. W., 140 Nassau St., New York
 Jackson & Son, J. S., Bath, Me.
 McMillan's Sons, W. H., 153 South St., New York
 Marine Decking & Supply Co., Philadelphia, See p. 6
 Marine Hardware Equipment Co., South Portland, Me.
 Marine Mfg & Supply Co., 158 South St., New York
 Merriman Bros., Jamaica Plains, Boston
 Newhall Chain Forge & Iron Co., 90 West St., New York
 Pacific Block & Forging Co., San Francisco
 Parish Supply & Mfg. Co., Chicago
 Pittsburgh Block & Mfg Co., Pittsburgh
 Reading Chain & Block Corp, Reading, Pa.
 Ryerson & Son, Jas. T., Chicago
 Scully Steel & Iron Co., The, Chicago
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Brothers, 122 Chambers St., New York
 Union Hardware Co., Torrington, Conn.
 Union Mfg Co., 26 Cortlandt St., New York
 Upson-Walton Co., Cleveland
 Weed & Co., Buffalo, N. Y.
 Western Block Co., Lockport, N. Y.
 Whitney Foundry Equipment Co., Harvey, Ill.
 Wilcox, Crittenden & Co., Middletown, Conn.
 Wright & Lacey, San Francisco
 (See also Ship Chandlers, Port Data Section)

BLOWERS, Electric, Portable

American Blower Co., Detroit, Mich.
 Batterman & Truitt Co., 18 E. Kinzie St., Chicago
 Bayley Manufacturing Co., Milwaukee
 Buffalo Forge Co., Buffalo
 Champion Blower & Forge Co., Lancaster, Pa.
 Diehl Manufacturing Co., Elizabeth, N. J.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 McCormick Co., J. S., Pittsburgh
 Roots Co., P. H. & F. M., Connersville, Ind.
 Sterling Blower Co., Hartford, Conn.
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109

Wing Manufacturing Co., L. J., 352 W. 13th St., New York

BLOWERS, Forced & Induced Draft

American Blower Co., Detroit, Mich.
 De Laval Separator Co., The, 165 Broadway, New York,
 see p. 68
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Green Fuel Economizer Co., The, 95 Liberty St., New York
 Howden & Co. of America, Inc., James, Wellsville, N. Y.
 Reid & Co., John, 30 Church St., New York
 Schutte & Koerting Co., Philadelphia
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109
 Terry Steam Turbine Co., The, Hartford, Conn., see p. 110
 Westinghouse Electric & Mfg. Co., Pittsburgh
 Wing Manufacturing Co., L. J., 352 W. 13th St., New York

BLOWERS, Ventilating (See Fans, Ventilating)

BLOW-OFF VALVES, Boiler (See Valves, Subhead)**BLUE PRINT PAPER**

National Tracing Cloth Co., Saylesville, R. I.
 New York Blue Print Paper Co., 96 Reade St., New York
 Pease Co., C. F., 230 Institute Place, Chicago
 Weil & Co., J. H., 1300 Arch St., Philadelphia

BLUE PRINTING MACHINE

Buckeye Engine Co., Salem, Ohio
 Dietzgen Co., Inc., Eugene, 218 E. 23d St., New York
 Pease Co., C. F., 230 Institute Place, Chicago
 Revolute Machine Co., 417 E. 93d St., New York
 Wagenharst & Co., J. H., 704 Dollar Bank Bldg., Youngstown, Ohio
 Wickes Bros., Saginaw, Mich.

BOARDS, Drawing (See Drawing Boards)**BOAT CHOCKS & CRADLES (See Chocks & Cradles)****BOAT COVERS (See Canvas Goods)****BOAT DAVITS (See Davits, Boat)****BOAT HOOKS**

Anchor Saw Mills Co., 253 Broadway, New York
 Champion Hardware Mfg Co., Geneva, Ohio
 De Grauw-Aymer Co., 34 South St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Galbraith & Son., C. C., 117 West St., New York
 Laughlin & Co., The Thos., Portland, Me.
 Marine Equipment & Supply Co., Philadelphia
 Marine Hardware Co., Peabody, Mass.
 Marine Hardware Equipment Co., So. Portland, Me.
 Neptune Hardware Mfg Co., 80 Warren St., New York
 New York Boat Oar Co., 100 Washington St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Wilcox, Crittenden & Co., Middletown, Conn.

BOAT OARS (See Oars)**BOAT RELEASING GEAR**

American Balsa Co., 50 E. 42d St., New York
 Coston Supply Co., 57 Front St., New York
 Raymond Releasing Device, Inc., 82 South St., New York
 Steward Davit & Equip. Corp., 17 Battery Pl., New York

BOATS, Life & Surf

American Balsa Co., 50 E. 42d St., New York
 Atlantic Lifeboat Co., 54 Delevan St., Brooklyn, N. Y.
 Banfield Boat Works, Atlantic Highlands, N. J.
 Beebe, Fred E., Greenport, N. Y.
 Benchley, Edwin A., Cambridge, Mass.
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100

Burger Boat Co., Manitowoc, Wis.
 Coston Supply Co., 57 Front St., New York
 Drein & Son, Thos., Wilmington, Del.
 Englis, C. M., 1 Madison Av., New York
 Galbraith & Son, C. C., 90 West St., New York
 Kahnweiler's Sons, David, 260 Front St., New York
 Kennebec Boat & Canoe Co., Waterville, Me.
 Lane Life Boat Co., C. M., 250 Huron St., Brooklyn, N. Y.
 Mullins Co., W. H., Salem, Ohio
 Neptune Boat Works, King & Dwight Sts., Bklyn, N. Y.
 Pacific Boat Co., Oakland, Cal.
 Purdy Boat Co., Miami Beach, Fla.
 Southland Steamship Co., Savannah, Ga., see p. 101
 Tregonning Boat Co., Seattle, Wash.

BOATS, Metallic Life

Alexandria Life Boat Co., Alexandria, Va.
 American Balsa Co., 50 E. 42d St., New York
 Apex Manufacturing Co., Emeryville, Cal.
 Atlantic Lifeboat Co., 54 Delevan St., Brooklyn, N. Y.
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100
 Consolidated Shipbuilding Corp., Morris Hgts, New York
 Coston Supply Co., 57 Front St., New York
 Drein & Son, Thos., Wilmington, Del.
 Forsyth Bros. Co., Harvey, Ill.
 Galbraith & Son, C. C., 90 West St., New York
 Kahnweiler's Sons, David, 260 Front St., New York
 Lane Lifeboat Co., C. M., 250 Huron St., Brooklyn, N. Y.

Marblehead Yacht Yards, The, Marblehead, Mass.
 Metallic Life Boat Co., Portland, Ore.
 Mobile Steel Co., Mobile, Ala.
 Mullins Co., W. H., Salem, Ohio
 Neptune Boat Works, King & Dwight Sts., Bklyn, N. Y.
 Petersen, Julius, Nyack, N. Y.
 Pride & Son, G. R., Jacksonville, Fla.
 Ramaley Boat Co., Wayzata, Minn.
 San Francisco Metal & Stamping Wks, 2268 Folsom St.,
 San Francisco
 S. O. S. Lifeboat Co., Inc., 235 Sixth Av., Brooklyn, N. Y.
 Tensfeldt, John O., Hoboken, N. J.
 Tregonning Boat Co., Seattle, Wash.

BOILER CIRCULATOR

Dew Valve Co., Inc., 149 Broadway, New York
 Eckliff Auto Boiler Circulator Co., Philadelphia
 Jenkins Co., V. S., Seattle, Wash.
 Schutte & Koerting Co., Philadelphia

BOILER COMPOUNDS

Bird Archer Co., The, 90 West St., New York
 Black Diamond Paint & Varnish Wks, Cincinnati
 Chard & Howe, 250 Front St., New York
 Dearborn Chemical Co., McCormick Bldg., Chicago
 Drew & Co., E. F., Drexel Bldg., Philadelphia
 Duryea Mfg Co., Bayonne, N. J.
 Eclipse Paint Mfg Co., Cleveland
 Economy Lubricating Co., Sullivan Square, Boston
 Garratt-Callahan Co., San Francisco
 Gunther & Hughey, Cincinnati
 Hawk-Eye Compound Co., Blue Island, Ill.
 Lord Co., Geo. W., 2238 N. 9th St., Philadelphia
 Modoc Co., Inc., The, Drexel Bldg., Philadelphia
 Moore Oil Co., Cincinnati
 Paige & Jones Chemical Co., 15 E. 40th St., New York
 Perolin Co. of America, 1112 W. 37th St., Chicago
 Preservaline Mfg Co., 854 Lorimer St., Brooklyn, N. Y.
 Shawmut Chemical Co., 42 Battery March St., Boston
 Smith, Kline & French Co., 431 Arch St., Philadelphia
 Standard Chemical Corp., Kalamazoo, Mich.
 Warley Co., Thos. C., 227 So. Front St., Philadelphia
 Winner Co., The, 30 Church St., New York
 Zinc Products Co., 30 N. Michigan Av., Chicago

BOILER DRAFT GAGES (See Draft Gages, Fireroom)**BOILER GRAPHITE (See Graphite, Boiler)****BOILER HEADS, One-Piece Scotch**

Lukens Steel Co., Coatesville, Pa.

BOILER LAGGING (See Asbestos Covering)**BOILER TUBE CLEANERS (See Brushes, Boiler Tube Soot Blowers Tube Cleaners, Rotary)****BOILER TUBE CUTTERS (See Cutters, Pipe & Tube)****BOILER TUBE EXPANDERS**

Babcock & Wilcox Co., The, 85 Liberty St., New York,
 See p. 7
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Fairbanks Co., 416 Broome St., New York
 Handlan Buck Mfg Co., St. Louis, Mo.
 Henderers Sons, A. L., Wilmington, Del.
 King Manufacturing Co., A. R., Kingston, N. Y.
 Liberty Manufacturing Co., Pittsburgh
 Lovejoy Tool Works, Chicago
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Weideke & Co., Gustav, Dayton, Ohio
 Western Tool & Mfg Co., Springfield, Ohio

BOILER TUBES, Charcoal Iron

Foster Mfg & Supply Co., Philadelphia
 Harvey Co., A. C., 374 Congress St., Boston
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York
 Parkesburg Iron Co., Parkesburg, Pa.
 Reading Iron Co., Reading, Pa.
 Ryerson & Son, Jos. T., Chicago
 Tyler Tube & Pipe Co., The, Washington, Pa.

STERLING-COOPER CO., NEW YORK

BOILER TUBES, Lap Welded Steel

Allegheny Steel Co., Pittsburgh
 Blum & Co., Julius, 532 W. 22d St., New York
 Ducommun Hardware Co., San Francisco
 Ford & Geirrine, San Francisco
 Foster Mfg & Supply Co., Philadelphia
 Harvey & Co., Arthur C., Boston
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 National Tube Co., Pittsburgh
 Ryerson & Son, Jos. T., Chicago
 Ward's Son, Edgar T., Boston

BOILER TUBES, Seamless Steel

American Tube & Pipe Bending Co., The, Cleveland
 Blum & Co., Julius, 532 W. 22d St., New York
 Detroit Seamless Steel Tube Co., Detroit, Mich.
 Ducommun Hardware Co., San Francisco
 Ford & Geirrine, San Francisco
 Foster Mfg & Supply Co., Philadelphia
 Harvey Co., Arthur C., Boston
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 National Tube Co., Pittsburgh
 Ryerson & Son, Jos. T., Chicago
 Standard Seamless Tube Co., Pittsburgh
 Ward's Sons, Edgar T., Boston

BOILER WATER CONTROLLER

Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14

BOILER WATER TESTING OUTFITS

Babcock & Wilcox Co., The, 85 Liberty St., New York,
 See p. 7
 Freas Glass Works, Inc., Francis L., Conshohocken, Pa.
 Lenz Apparatus Co., Morris & Bambrey, Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Scientific Utilities Co., Inc., 18 E. 16th St., New York
 Thomas Co., Arthur H., W. Washington Sq., Philadelphia

BOILERS, Scotch Marine

Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.
 Albina Engine & Machine Works, Portland, Ore.
 American Shipbuilding Co., 2017 Superior Av., Cleveland
 Ames Shipbuilding & Dry Dock Co., Seattle, Wash.
 Atlantic Basin Iron Works, 11 Imlay St., Brooklyn, N. Y.
 Atlantic Works, East Boston
 Badenhausen Co., 1425 Chestnut St., Philadelphia
 Baizley Iron Works, John, Philadelphia
 Baltimore Dry Dock & Shipbuilding Corp, Baltimore
 Bath Iron Works, Bath, Me.
 Berkeley Machine Works, Inc., Norfolk, Va.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Brennan & Co., John, Detroit
 Casey-Hedges Co., Chattanooga, Tenn.
 Charleston Dry Dock & Machinery Co., Charleston, S. C.
 Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
 Commercial Boiler Works, Seattle, Wash.
 Consolidated Shipbuild Corp, Morris Heights, New York
 Cramp & Sons Ship & Eng. Bldg. Co., Wm., Philadelphia
 Delaware Shipbuilding & Repair Co., Philadelphia
 Delaney & Co., P., Newburgh, N. Y.
 Dussel Iron Works, Alex., New Orleans, La.
 Duvall & Co., Norfolk, Va.
 Farrar & Trefts, Buffalo
 Federal Shipbuilding Co., Kearney, N. J.
 Fletcher Co., W. & A., Hoboken, N. J.
 Franklin Machine & Steam Boiler Works, Brooklyn, N. Y.
 Fuller Co., Geo. A., Wilmington, N. C.
 Granger Co., A. D., 15 Park Row, New York
 Gray's Engineering Works, Galveston, Tex.
 Great Lakes Engineering Works, 5 Nassau St., New York
 Gulf Machine Works, Pensacola, Fla.
 Gunning Boiler & Machine Co., New Bedford, Conn.
 Hodge Boiler Works, East Boston, Mass.
 International Boiler Works, East Stroudsburg, Pa.
 Johnson Iron Works, Ltd., The, New Orleans, La.
 Kennedy Co., Wm. J., 518 W. 22d St., New York

Kingsford Foundry & Machine Co., Oswego, N. Y.
 Lake Erie Boiler Works, Buffalo
 Llewellyn Iron Works, Los Angeles, Cal.
 Main Iron Works, San Francisco
 Manitowoc Shipbuilding Co., Manitowoc, Wis.
 Merrills Stevens Shipbldg Corp, Fidelity Bldg., Baltimore
 Moore Shipbuilding Co., Oakland, Cal.
 Morgan Engineering Co., Jersey City, N. J.
 Morse Dry Dock & Repair Co., Brooklyn, N. Y.
 Murphy Boiler Co., 157 Barclay St., Milwaukee, Wis.
 Muskegon Boiler Works, Muskegon, Mich.
 Newburgh Steam Boiler Works, Newburgh, N. Y.
 New York Engineering Co., 2 Rector St., New York,
 See p. 12
 New York Shipbuilding Corp, Camden, N. J.
 Nooter Boiler Works Co., John, St. Louis, Mo.
 O'Brien Boiler Works Co., John, St. Louis, Mo.
 Pacific Marine Iron Works, Portland, Ore.
 Portland Co., The, Portland, Me.
 Portland Ship Ceiling Co., Portland, Me.
 Riverside Boiler Works, Cambridge, Mass.
 Rohan Boat, Boiler & Tank Co., St. Louis, Mo.
 Ruemmeli-Dawley Mfg Co., St. Louis, Mo.
 St. Louis Boat & Engineering Co., St. Louis, Mo.
 Staten Island Shipbuilding Co., Staten Island, N. Y.
 Sun Shipbuilding Co., Philadelphia
 Tickle Engine Works, A., Brooklyn, N. Y.
 Todd Shipyards, Inc., 15 Whitehall St., New York
 Vulcan Iron Works, Jersey City, N. J.
 Wilkinson Machine Co., Savannah, Ga.
 Willamette Iron & Steel Works, Portland, Ore.

BOILERS, Water Tube, Marine

Almy Water Tube Boiler Co., Providence, R. I.
 American Shipbuilding Co., 2017 Superior Av., Cleveland
 Babcock & Wilcox Co., The, 85 Liberty St., New York,
 See p. 7
 Badenhausen Co., 1425 Chestnut St., Philadelphia
 Ballin Water Tube Boiler Co., Portland, Ore.
 Baltimore Dry Dock & Shipbuilding Corp, Baltimore
 Bath Iron Works, Bath, Me.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Bridgeport Boiler Works, The, Bridgeport, Conn.
 Casey-Hedges Co., Chattanooga, Tenn.
 Connelly Boiler Co., D., 2503 Elm Ave., Cleveland
 Cramp & Sons Ship & Eng. Bldg. Co., Wm., Philadelphia
 Edgemoor Iron Co., Edgemoor, Del.
 Fletcher Co., W. & A., Hoboken, N. J.
 Foster Marine Boiler Corp, 111 Broadway, New York,
 See p. 9
 Granger Co., A. D., 15 Park Row, New York
 Heine Safety Boiler Co., St. Louis, Mo., See pp. 10 & 11
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Kingsford Foundry & Machine Co., Oswego, N. Y.
 Llewellyn Iron Works, Los Angeles, Cal.
 Main Iron Works, San Francisco
 New York Engineering Co., 2 Rector St., New York,
 see p. 12
 New York Shipbuilding Corp, Camden, N. J.
 O'Brien Boiler Works Co., John, St. Louis, Mo.
 Pacific Marine Iron Works, Portland, Ore.
 Page Boiler Co., 815 Larrabee St., Chicago
 Ruemmeli-Dawley Mfg Co., St. Louis, Mo.
 Staten Island Shipbuilding Co., Staten Island, N. Y.
 Todd Shipyards, Inc., 15 Whitehall St., New York
 Ward Engineering Works, The, Charleston, W. Va.
 Wickes Boiler Co., Saginaw, Mich.

BOLLARDS

Astoria Marine Iron Works, Astoria, Ore.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Central Foundry Co., The, 90 West St., New York
 Doud-MacFarlane Machinery Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Independent Foundry Co., Portland, Ore.
 Main Iron Works, San Francisco

Penn Seaboard Steel Corp, Franklin Trust Bldg., Philadelphia, see p. 18

Thacher Propeller & Foundry Corp, Albany, N. Y.

Ulster Foundry Co., Kingston, N. Y.

Wheeling Mold & Foundry Co., Wheeling, W. Va.

BOLT & NUT MACHINES

Acme Machinery Co., Cleveland

Greenfield Tap & Die Corp., Greenfield, Mass.

Landis Machine Co., Waynesboro, Pa.

Niles-Bement-Pond Co., 111 Broadway, New York

BOLTS, Anchor

American Nut & Bolt Fastener Co., Pittsburgh

Diamond Expansion Bolt Co., 90 West St., New York

Star Expansion Bolt Co., 147 Cedar St., New York

U. S. Expansion Bolt Co., 25 Elm St., New York

BOLTS, Box, Square, Brass

Artistic Bronze Co., Bridgeport, Conn.

Atlas Bolt & Screw Co., 1100-1144 Ivanhoe Rd., Cleveland

Barrows Lock Co., Lockport, Ill.

Dayton Manufacturing Co., Dayton, Ohio

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Gould-Mercereau Co., 52 W. 38th St., New York

Marrow Manufacturing Co., Elmira, N. Y.

Scoville Manufacturing Co., Waterbury, Conn.

Simmons Hardware Co., St. Louis, Mo.

Steele & Johnson Manufacturing Co., Waterbury, Conn.

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Waterbury Manufacturing Co., Waterbury, Conn.

Yale & Towne Manufacturing Co., 9 E. 40th St., New York

BOLTS, Bronze, Standard or Square Neck or Flush

Channon Mfg Co., Jas. H., 52 Broadway, New York

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Edro Richardson Brass Co., The, Baltimore

Grand Rapids Brass Co., Grand Rapids, Mich.

Hungerford Brass & Copper Co., U. T., 76 Lafayette St., New York

National Brass Co., Grand Rapids, Mich.

Phosphor Bronze Smelting Co., 200 Washington Av., Philadelphia

Reading Hardware Co., Reading, Pa.

Simmons Hardware Co., St. Louis, Mo.

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Winchester B. & C. Co., Winsted, Conn.

BOLTS, Deck

American Iron & Steel Mfg Co., Lebanon, Pa.

Bacon & Matheson Forge Co., Seattle, Wash.

Bayonne Bolt & Nut Co., Bayonne, N. J.

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Lanz & Sons, Matthew, Pittsburgh

Larkin & Co., J. K., 253 Broadway, New York

Marine Mfg & Supply Co., 158 South St., New York

Pittsburgh Screw & Bolt Co., Pittsburgh

BOLTS, Expansion

Ankyra Mfg Co., Wayne Junction, Philadelphia

Artistic Bronze Co., Bridgeport, Conn.

Atlas Bolt & Screw Co., 1100 Ivanhoe Road, Cleveland

B. & K. Mfg Co., The, New Britain, Conn.

Brohard Co., 3d & Lehigh Av., Philadelphia

Brown Wales Co., Boston

Brush Nail Expansion Bolt Co., Greenwich, Conn.

Butts & Ordway Co., 32 Purchase St., Boston

Columbus Brass Co., Columbus, Ohio

Diamond Expansion Bolt Co., 90 West St., New York

Good Manufacturing Co., 305 E. 134th St., New York

Gould-Mercereau Co., 52 W. 38th St., New York

Harry & Co., L. C., 114 Liberty St., New York

Hubbard & Co., Pittsburgh

Jolley & Co., J. H., Philadelphia

Manning Maxwell & Moore, 119 W. 40th St., New York

Moran Bolt & Nut Co., St. Louis, Mo.

New York Iron & Steel Prod. Co., 143 Chambers St., New York

O'Leary & Son Co., A. J., Chicago

Peters & Son, Jas., Philadelphia

Richmond Screw Anchor Co., Pulitzer Bldg., New York

Steward & Romaine Mfg Co., Philadelphia

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Van Expansion Bolt Co., Chicago

BOLTS, Eye, Brass

Connecticut Hardware Mfg Co., Bridgeport, Conn.

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Eagle Bolt & Forging Co., 1435 E. 45th St., Cleveland

Grand Rapids Brass Co., Grand Rapids, Mich.

Hungerford Brass & Copper Co., U. T., 76 Lafayette St., New York

Pacific Block & Forging Co., San Francisco

Scoville Mfg. Co., Waterbury, Conn.

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Waterbury Mfg Co., Waterbury, Conn.

BOLTS, Eye, Steel

B. & K. Mfg Co., The, New Britain, Conn.

Brooks & Sons, M. S., Chester, Conn.

Butts & Ordway Co., 32 Purchase St., Boston

Columbus Bolt Works Co., Columbus, Ohio

Connecticut Hardware Mfg Co., Bridgeport, Conn.

Lakeside Forge Co., Harrison Av., Erie, Pa.

Liberty Steel Products Co., 233 Broadway, New York

Marine Hardware Equipment Co., So. Portland, Me.

Michigan Bolt & Nut Works, Detroit, Mich.

Moran Bolt & Nut Co., Florida & First Sts., St. Louis, Mo.

Oliver Iron & Steel Co., Pittsburgh

Pacific Block & Forging Co., San Francisco

Republic Iron & Steel Co., 322 So. Michigan Av., Chicago

Upson Nut Co., Scranton Road, Cleveland

BOLTS, Ring, Steel

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Laughlin & Co., Thos., Portland, Me.

Marine Hardware & Equipment Co., So. Portland, Me.

Pacific Block & Forging Co., San Francisco

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Wilcox Crittenden Co., Middletown, Conn.

BOLTS, Toggle, Iron

Diamond Expansion Bolt, 90 West St., New York

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Marine Mfg & Supply Co., 158 South St., New York

Montgomery & Co., 105 Fulton St., New York

Parker Supply Co., 785 E. 135th St., New York

Sherman, R. B., 45 Warren St., New York

Star Expansion Bolt Co., 147 Cedar St., New York

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

U. S. Expansion Bolt Co., 25 Elm St., New York

BOLTS & NUTS, Carriage

Artistic Bronze Co., Bridgeport, Conn.

Brown-Wales Co., Fargo & Egmont Sts., Boston

Columbus Bolt Works Co., Columbus, Ohio

Continental Bolt & Iron Works, 2225 W. 43d St., Chicago

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Falls Rivet Co., Kent, Ohio

Lake Erie Iron Co., Schofield Bldg., Cleveland

Michigan Bolt & Nut Works, Detroit, Mich.

Pittsburgh Screw & Bolt Co., Preble Av. & Neville St., Pittsburgh

Steward & Romaine Mfg Co., The, Philadelphia

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

Upson Nut Co., Scranton Road, Cleveland

BOLTS & NUTS, Stove

Champion Mfg Co., 74th St., & Kimbark Av., Chicago

Corbin Screw Corp, New Britain, Conn.

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Falls Rivet Co., Kent, Ohio

National Screw & Tack Co., Cleveland

Reading Screw Co., Norristown, Pa.

Reed & Prince Mfg Co., Worcester, Mass.

Sargent & Co., 94 Center St., New York

Sherman, R. B., 45 Warren St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

BOLTS, NUTS, STUDS and Material for Same

American Brass Co., Waterbury, Conn.
 American Iron & Steel Mfg Co., Reading, Pa.
 American Screw Co., Providence, R. I.
 Ames & Co., W., Jersey City, N. J.
 Armstrong & Parker, Baltimore
 Astoria Marine Iron Works, Astoria, Ore.
 Atwater Mfg Co., Plantsville, Conn.
 Bacon & Mattheson Forge Co., Seattle, Wash.
 Bassett Bolt Works, D. M., Shelton, Conn.
 Bayonne Bolt & Nut Co., Bayonne, N. J.
 Beck & Corbitt Iron Co., St. Louis, Mo.
 Blake & Johnson Co., Waterbury, Conn.
 Boston Bolt & Iron Co., Boston
 Brown, A. R., Erwin, Tenn.
 Brown Co., The, Syracuse, N. Y.
 Brown-Wales Co., Boston
 Burden Iron Co., Syracuse, N. Y.
 Butts & Ordway Co., Boston
 Central City Bolt Co., Syracuse, N. Y.
 Chicago Nipple Mfg Co., 900 W. Lake St., Chicago
 Clarke Bros. Bolt Co., Milldale, Conn.
 Coe Brass Branch, Torrington, Conn.
 Columbus Brass Co., Columbus, Ohio
 Detroit Copet & Brass Rolling Mills, Detroit, Mich.
 Detroit Nut Co., Detroit, Mich.
 Detroit Screw Works, Detroit, Mich.
 Drake Lock Nut Co., Cleveland, Ohio
 Eastern Bolt & Nut Co., E. Providence, R. I.
 Falls Rivet Co., The, Kent, Ohio
 Fawles Co., James D., Boston
 Gary Screw & Bolt Co., Gary, Ind.
 Graham Nut Co., Pittsburgh
 Grant, Robert, 233 Broadway, New York
 Harper Screw Works, F. C., Chicago
 Harrison Bolt & Nut Co., Harrison, N. J.
 Hartley, Daniel, Newark, N. J.
 Haskell Mfg Co., Wm. H., Pawtucket, R. I.
 Hubbard & Co., Pittsburgh
 Hussey & Co., C. G., Pittsburgh
 Illinois Steel Co., The, Chicago
 James Mfg Co., The, Fort Atkinson, Wis.
 Kansas City Bolt & Nut Works, Kansas City, Mo.
 Keene & Co., Inc., W. R., 90 W. B'way, New York
 Lanz & Sons, L., Pittsburgh, Pa.
 Liberty Steel Products Co., 233 Broadway, New York
 Michigan Bolt & Nut Works, Detroit
 Milton Mfg Co., The, Milton, Pa.
 Moore, Joshua, Marseilles, Ill.
 Moran Bolt & Nut Mfg Co., St. Louis, Mo.
 Mutual Electric & Mach Co., Detroit
 National Bolt & Nut Co., Pittsburgh
 National Supply Co., Baltimore
 Nelson & Sons, Wm. H., Taunton, Mass.
 Newark Rivet Works, Newark, N. J.
 New Castle Steel & Iron Co., Pittsburgh
 New England Bolt & Steel Co., Everett, Mass.
 New England Screw Co., Boston
 Old Dominion Iron & Nail Works Co., Richmond, Va.
 O'Leary & Son Co., A. J., Chicago
 Oliver Iron & Steel Co., Pittsburgh
 Pacific Coast Steel Co., San Francisco
 Pawtucket Mfg Co., Pawtucket, R. I.
 Pittsburgh Forge & Iron Co., Pittsburgh
 Pittsburgh Knife & Forge Co., Pittsburgh
 Pittsburgh Rivet Co., Pittsburgh
 Pittsburgh Screw & Bolt Co., Pittsburgh
 Plymouth Mills., Plymouth, Mass.
 Portland Bolt & Mfg Co., Portland, Ore.
 Pottsville Bolt Co., Pottsville, Pa.
 Progressive Mfg Co., The, Torrington, Conn.
 Republic Iron & Steel Co., Youngstown, Ohio
 Rhode Island Tool Co., Providence, R. I.
 Rockford Bolt Co., Rockford, Ill.
 Safety Nut & Bolt Co., The, Cleveland
 St. Louis Screw & Mfg Co., St. Louis, Mo.
 Scovil Iron & Steel Co., Jersey City, N. J.
 Scranton Bolt & Nut Co., Scranton, Pa.

Severance Mfg Co., S., Glassport, Pa.
 Shelton Co., The, Shelton, Conn.
 Smith & Co., Thos., Worcester, Mass.
 Southern California Iron & Steel Co., Los Angeles
 Standard Nut & Bolt Co., Valley Falls, R. I.
 Standard Rivet Co., 41 Lincoln St., Boston
 Steffens-Amberg Co., Newark, N. J.
 Taunton Rivet Works, Taunton, Mass.
 Tredegar Company, Richmond, Va.
 Tubular Rivet & Stud Co., Boston
 Upson Nut Co., The, Cleveland
 Victor Screw Works, Detroit, Mich.

BOLTS, NUTS & STUDS, Brass Standard

Artistic Bronze Co., Bridgeport, Conn.
 Atlas Bolt & Screw Co., 1100 Ivanhoe Road, Cleveland
 Bassemir & Son, John, 87 Frankfort St., New York
 Broadway Hardware Co., Newport, R. I.
 Cincinnati Screw Co., G. C. T., New York
 Columbus Brass Co., 538 Dublin Av., Columbus, Ohio
 Davis & Hemphill, Elkbridge, Md.
 Detroit Screw Works, 346 Franklin St., Detroit, Mich.
 Edro-Richardson Brass Co., The, Baltimore
 Eureka Co., The, 120 Broadway, New York
 Gaskell & Son, Wm., 59 Freeman St., Brooklyn, N. Y.
 Grand Ravids Brass Co., Grand Rapids, Mich.
 Harper Screw Works, F. C., 20 E. 8th St., Chicago
 Hartford Machine Screw Co., Hartford, Conn.
 Haskell Mfg Co., Wm. H., Pawtucket, R. I.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Gould-Mercereau Co., 52 W. 38th St., New York
 Jolley & Co., J. H., Philadelphia
 Keystone Screw Co., 117 Leonard St., New York
 Livermore, H. T., 85 Pearl St., Boston
 Metal Products & Supply Co., Philadelphia
 Moran Bolt & Nut Co., St. Louis, Mo.
 Morrow Mfg. Co., Elmira, N. Y.
 New Haven Screw Co., New Haven, Conn.
 Pawtucket Mfg Co., Pawtucket, R. I.
 Peters & Son, James, Philadelphia
 Reed & Prince Mfg Co., Worcester, Mass.
 Russell Mfg Co., Naugatuck, Conn.
 St. Louis Screw Co., 600 Clarence Av., St. Louis
 Standard Nut & Bolt Co., Valley Falls, R. I.
 Steele & Johnson Mfg Co., Waterbury, Conn.
 Worcester Machine Screw Co., Worcester, Mass.

BOLTS, NUTS & STUDS, Iron Standard

Atlas Bolt & Screw Co., 1100 Ivanhoe Road, Cleveland
 Awes & Co., W., Jersey City, N. J.
 Bethlehem Steel Co., Bethlehem, Pa.
 Broadway Hardware Co., Newport, R. I.
 Brown Wales Co., Boston
 Butts & Ordway Co., 32 Purchase St., Boston
 Columbus Bolt Works Co., Columbus, Ohio
 Continental Bolt & Iron Works, 43d St. & Western Av., Chicago
 Cooper & Townsend, Philadelphia
 Detroit Screw Works, 346 Franklin St., Detroit, Mich.
 Falls Rivet Co., Kent, Ohio
 Gaskell & Son, Wm., 59 Freeman St., Brooklyn, N. Y.
 Harper Screw Works, F. C., 20 E. 8th St., Chicago
 Harry & Co., L. C., 114 Liberty St., New York
 Hartford Machine Screw Co., Hartford, Conn.
 Hubbard & Co., Pittsburgh
 Lake Erie Iron Co., Scofield Bldg., Cleveland
 Lanz & Son, Mathew, Carson & 29th St., Pittsburgh
 Michigan Bolt & Nut Works, Detroit, Mich.
 Michelman & Gorden Iron Works, Inc., 267 Wyckoff Av., Brooklyn, N. Y.
 National Screw & Tack Co., Cleveland
 New Haven Screw Co., New Haven, Conn.
 Pawtucket Mfg Co., Pawtucket, R. I.
 Pottsville Bolt Co., Pottsville, Pa.
 Richmond Screw Anchor Co., Pulitzer Bldg., New York
 St. Louis Screw Co., St. Louis, Mo.
 Standard Nut & Bolt Co., Valley Falls, R. I.
 Upson Nut Co., Scranton Road, Cleveland
 Victor Screw Works, 240 John St., Detroit

BOLTS, NUTS & STUDS, Steel Standard

American Equipment Co., Norristown, Pa.
 Atlas Bolt & Screw Co., 1100 Ivanhoe Road, Cleveland
 B. & K. Mfg Co., The, New Britain, Conn.
 Bayonne Bolt & Nut Co., Bayonne, N. J.
 Bethlehem Steel Co., Bethlehem, Pa.
 Butts & Ordway Co., 32 Purchase St., Boston
 Cincinnati Screw Co., G. C. T., New York
 Columbus Bolt Works, Columbus, Ohio
 Continental Bolt & Iron Works, 2225 W. 43d St., Chicago
 Detroit Screw Works, 246 Franklin St., Detroit, Mich.
 Eagle Bolt & Forging Co., 1435 E. 45th St., Cleveland
 Edelman & Co., E., 341 E. Ohio St., Chicago
 Falls Rivet Co., Kent, Ohio
 Graham Nut Co., 1317 Carson St., Pittsburgh
 Hartford Machine Screw Co., Hartford, Conn.
 Haskell Mfg Co., Pawtucket, R. I.
 Hubbard & Co., Pittsburgh
 Illinois Steel Co., 208 S. La Salle St., Chicago
 Lake Erie Iron Co., Scofield Bldg., Cleveland
 Lanz & Son, Mathew, Carson & 29th St., Pittsburgh
 Liberty Steel Products Co., 233 Broadway, New York
 Manning Maxwell & Moore, 119 W. 40th St., New York
 Moran Bolt & Nut Co., Florida & 1st St., St. Louis, Mo.
 Morrow Manufacturing Co., Elmira, N. Y.
 National Lock Co., Rockford, Ill.
 Neily Nut & Bolt Co., 26 S. 22d St., Pittsburgh
 New Haven Screw Co., New Haven, Conn.
 Ohio Bolt & Nut Co., Berea, Ohio
 Pittsburgh Rivet Co., 38th St., Pittsburgh
 Republic Iron & Steel Co., 322 S. Michigan Av., Chicago
 Richmond Screw Anchor Co., Pulitzer Bldg., New York
 Ryerson & Son, J. T., 30 Church St., New York
 St. Louis Screw Co., 600 Clarence Av., St. Louis, Mo.
 Simmons Hardware Co., St. Louis, Mo.
 Standard Nut & Bolt Co., Valley Falls, R. I.
 Toledo Screw Products Co., 2236 Snead Av., Toledo, Ohio
 Upson Nut Co., Scranton Road, Cleveland
 Victor Screw Works, 240 John St., Detroit, Mich.
 Worcester Machine Screw Co., Worcester, Mass.

BOOMS, Cargo, Wood (See Masts & Spars, Wood)**BOOMS, Tubular Steel**

National Tube Co., Pittsburgh

BORING & DRILLING MACHINES, Horizontal

Barnes Co., W. F. & John, Rockford, Ill.
 Bausch Machine Tool Co., Springfield, Mass.
 Betts Machine Co., Rochester, N. Y.
 Cleveland Machine Tool Co., Cleveland
 Defiance Machine Works, Defiance, Ohio
 Fosdick Machine Tool Co., Cincinnati
 Giddings & Lewis Mach Tool Co., Fond du Lac, Wis.
 Gisholt Mach Co., Madison, Wis.
 Lambert Mach & Engineering Co., Cleveland
 Morton Mfg Co., Muskegon, Mich.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pawling & Harnishfeger, Milwaukee, Wis.
 Rockford Drilling Machine Co., Rockford, Ill.
 Sellers & Co., Wm., Philadelphia
 Universal Boring Mach Co., Hudson, Mass.

BORING & DRILLING & MILLING MACHINES, Horizontal

Betts Machine Co., Rochester, N. Y.
 Defiance Machine Works, Defiance, Ohio
 Espen-Lucas Machine Works, Philadelphia
 Hill, Clarke & Co., Boston
 Landis Tool Co., Waynesboro, Pa.
 Lucas Machine Tool Co., Cleveland
 Newton Machine Tool Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Prentiss & Co., Inc., Henry, 149 Broadway, New York
 Universal Boring Machine Co., Hudson, Mass.

BORING & TURNING MILLS, Vertical

Bausch Machine Tool Co., Springfield, Mass.
 Betts Machine Co., Rochester, N. Y.
 Bickford & Co., H., Lakeport, N. H.
 Bullard Machine Tool Co., Bridgeport, Conn.
 Cincinnati Planer Co., Cincinnati

Colburn Machine Tool Co., Franklin, Pa.
 Gisholt Machine Co., Madison, Wis.
 Henes, Louis G., San Francisco
 King Machine Tool Co., Cincinnati
 Niles-Bement-Pond Co., 111 Broadway, New York
 Sellers & Co., Wm., Philadelphia

BORING BARS

Gisholt Machine Co., Madison, Ohio
 Kelly Reamer Co., Cleveland
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pedrick Tool & Machine Co., 3640 N. Lawrence St., Philadelphia
 Ready Tool Co., Bridgeport, Conn.
 Rooksby & Co., E. J., Philadelphia
 Underwood Corp, H. B., 1015 Hamilton St., Philadelphia
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.
 Williams & Wells, 252 Fulton St., New York

BORING HEADS

Davis Boring Tool Co., St. Louis, Mo.
 Marvin & Casler Co., Canastota, N. Y.
 Taft-Pierce Manufacturing Co., Woonsocket, R. I.

BORING MACHINES, Cylinder

Defiance Machine Works, Defiance, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pawling & Harnishfeger, Milwaukee, Wis.
 Pedrick Tool & Machine Co., Philadelphia
 Rooksby & Co., E. J., Philadelphia
 Ryerson & Son, Jos. T., Chicago

BORING MACHINES, Horizontal

Beaman & Smith Co., Providence, R. I.
 Betts Machine Co., Rochester, N. Y.
 Cleveland Machine Tool Co., Cleveland
 Lucas Machine Tool Co., Cleveland
 Newton Machine Tool Works, Inc., Philadelphia
 Pawling & Harnishfeger Co., Milwaukee, Wis.
 Poole & Co., J. Morton, Wilmington, Del.
 Rockford Drilling Machine Co., Rockford, Ill.

BORING MACHINES, Vertical

Bullard Machine Tool Co., Bridgeport, Conn.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pedrick Tool & Machine Co., Philadelphia
 Turner Machine Co., Danbury, Conn.

BORING TOOLS

Armstrong Bros. Tool Co., Chicago
 Kelly Reamer Co., Cleveland
 Lovejoy Tool Co., Springfield, Vt.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

BOWLS, W. C.

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Curtiss Co., J. H., 2 South St., New York
 DuBois Co., Inc., F. N., 247 Ninth Av., New York
 Federal Huber Co., Chicago
 Jenkins Mfg Co., 2 Vesey St., New York
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 McCambridge Co., Philadelphia
 Madock & Sons, J., Trenton, N. J.
 Millar & Son Co., Chas., Utica, N. Y.
 Mott Iron Works, J. L., Trenton, N. J.
 Nason Mfg Co., 71 Fulton St., New York
 Standard Sanitary Mfg Co., Chicago

BOWLS, Wood

Blodgett Co., Inc., G. S., Burlington, Vt.
 Burton Range Co., The., Cincinnati
 Chapman & Sargent Co., Perrysburg, Ohio
 Dougherty & Son, W. F., Philadelphia
 Ludington Woodenware Co., Wilmington, Vt.
 Pierce & Co., W. E., Milford, N. H.
 Stearns Co., The, Chicago

STERLING-COOPER CO., NEW YORK

BOXES, Branch
Branch Junction
Conduit
Connection
Distribution
Feeder Junction
Outlet

Arnessen Electric Co., Inc., 109 Broad St., New York
 Austin Co., The M. B., 700 Jackson Blvd., Chicago
 Benjamin Electric Mfg Co., Chicago
 Bryant Electric Co., Bridgeport, Conn.
 Butte Engineering & Electric Co., San Francisco
 Central Electric Co., Chicago
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Crouse-Hinds Co., Syracuse, N. Y.
 Crown Electrical Mfg Co., St. Charles, Ill.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Electric Fuse Guard Co., 50 Church St., New York
 Electrical Mfg Co., Cleveland
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hampden Brass Co., Springfield, Mass.
 Hart & Hegeman Mfg Co., Hartford, Conn.
 Lovell & Co., F. H., Arlington, N. J.
 Marine Electric Co., San Francisco
 National Metal Molding Co., Pittsburgh
 Pittsburgh Electric & Machine Co., Pittsburgh
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich. see p. 43
 Shull Co., The, Washington, D. C.
 Trumbull Electric Mfg Co., Plainville, Conn.
 Western Electric Co., 151 Fifth Av., New York
 Worcester Electric & Mfg Co., Worcester, Mass.

BOXES, Mitre, Adjustable, Non-Adjustable

Chandler, Farquhar Co., Boston
 Davis, Hunt, Collister Hardware Co., Cleveland
 Fairbanks Co., 416 Broome St., New York
 Goodell Pratt Co., Greenfield, Mass.
 Millers Falls Co., Millers Falls, Mass.
 Modern Tool & Machine Works, Inc., Newark, N. J.
 Shapleigh Hardware Co., St. Louis
 Stearns & Co., E. C., Syracuse, N. Y.
 Strelinger & Co., Chas. A., Detroit, Mich.

BRACES, Bit, Corner, Bevel-Gear & Ratchet

Goodell-Pratt Co., Greenfield, Mass.
 Maddock & Co., 42 N. 6th St., Philadelphia
 Marshall-Wells Co., Duluth, Minn.
 Millers Falls Co., Millers Falls, Mass.
 Pierce Hardware Co., Taunton, Mass.
 Sargent & Co., New Haven, Conn.
 Shapleigh Hardware Co., St. Louis, Mo.
 Simmons Hardware Co., 425 Arch St., Philadelphia
 Standard Supply & Equipment Co., Cherry & 13th Sts., Philadelphia
 Worthington Co., Geo., 802 Clair Av., Cleveland

BRACKETS, Curtain Rod

Berbecker & Rowland Mfg Co., Waterville, Conn.
 Curtain Supply Co., 50 Church St., New York
 Dayton Mfg Co., Dayton, Ohio
 Gould-Mercereau Co., 52 W. 38th St., New York
 Grand Rapids Brass Co., Grand Rapids, Mich.
 Jamestown Curtain Rod Mfg. Co., Jamestown, N. J.
 Novelty Mfg Co., Waterbury, Conn.
 Simmons Hardware Co., St. Louis, Mo.
 Standard Shade & Roller Co., Ogdensburg, N. Y.
 Steele & Johnson Mfg Co., Waterbury, Conn.
 Turner & Seymour Mfg Co., Torrington, Conn.
 Western Brass Mfg Co., Chicago
 Winchester B. & C. Co., Winstead, Conn.

BRACKETS, Light, Bronze Finish

American Safety Lamp & Mine Co., Scranton, Pa.
 Beardslee Chandelier Mfg. Co., Chicago
 Faries Mfg. Co., Decatur, Ill.
 Findlay Mfg Co., Robert, 224 Fifth Av., New York
 Kayline Co., The, Cleveland
 Morreau Co., The, Cleveland

BRADS, Wire, Copper

American Steel & Wire Co., 30 Church St., New York
 Art Metal Works, Inc., 7 Mulberry St., Newark, N. J.
 Atlas Tack Co., Fairhaven, Mass.
 Broadway Hardware Co., Newport, R. I.
 Clendenin Bros., 220 Broadway, New York
 Cleveland Tack Co., Cleveland
 Duer & Sons, John, Baltimore
 Gould-Mercereau Co., 48 W. 38th St., New York
 Hibbard Spencer Bartlett Co., Chicago
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Jolley & Co., J. H., Philadelphia
 Milwaukee Tack Co., Milwaukee, Wis.
 Trumbour Whitehead Brass & Copper Co., 309 Canal St., New York
 Turner & Seymour Mfg Co., Torrington, Conn.
 (See also Ship Chandlers, Port Data Section)

BRADS, Wire, Steel

Art Metal Works, Inc., 7 Mulberry St., Newark, N. J.
 Atlas Tack Co., Fairhaven, Mass.
 Broadway Hardware Co., Newport, R. I.
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Cambrai Steel Co., 165 Broadway, New York
 Duer & Sons, John, Baltimore
 Gould-Mercereau Co., 48 W. 38th St., New York
 Hibbard Spencer Bartlett Co., Chicago
 Illinois Nail Co., Chicago
 Jolley & Co., J. H., Philadelphia
 Judd & Co., H. L., 87 Chambers St., New York
 Milwaukee Tack Co., Milwaukee, Wis.
 National Lock Co., Rockford, Ill.
 Simmons Hardware Co., St. Louis, Mo.
 Turner & Seymour Mfg Co., Torrington, Conn.
 Wickwire Bros., Inc., Cortland, N. Y.
 Wikon Steel Products Co., Chicago
 (See also Ship Chandlers, Port Data Section)

BRAKES, Solenoid, Motor

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Electric Controller & Mfg Co., Cleveland
 General Electric Co., Schenectady, N. Y., see pp. 36-41

BRASS, Bar, Rod, Strip, Commercial

Amalgamated Products Co., 165 Broadway, New York
 American Brass Co., The, Waterbury, Conn.
 Baltimore Tube Co., Inc., 522 Fifth Av., New York
 Bridgeport Brass Co., Bridgeport, Conn.
 Bristol Brass Co., Bristol, Conn.
 British-American Metals Co., 52 Vanderbilt Av., New York
 Chase Rolling Mills Co., Waterbury, Conn.
 Clendenin Bros., 220 Broadway, New York
 Cleveland Brass & Copper Mills, Cleveland
 Connecticut Brass & Mfg Co., Waterbury, Conn.
 Connecticut Brass Corp., West Cheshire, Conn.
 Eagle Smelting & Refining Wks, 233 Broadway, New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Jolly & Co., J. H., Philadelphia
 Merchant & Evans Co., 242 Water St., New York
 Midwest Brass & Copper Co., Inc., 6 Church St., New York
 National Brass & Cop. Tube Co., 41 Park Row, New York
 New Jersey Tube Co., Newark, N. J.
 Patterson Bros., 27 Park Row, New York
 Randolph-Clowes Co., 253 Broadway, New York
 Riverside Metal Co., Riverside, N. J.
 Sandoval Zinc Co., Chicago
 Scoville Mfg. Co., Waterbury, Conn.
 Stamford Rolling Mills Co., Springdale, Conn.
 Standard Underground Cable Co., Pittsburgh
 Stimpson & Co., E. B., 68 Franklin Av., Brooklyn, N. Y.
 Taunton-New Bedford Copper Co., Taunton, Mass.

BRASS, Bar, Rolled, Naval

Amalgamated Products Co., 165 Broadway, New York
 American Brass Co., The, Waterbury, Conn.
 Bridgeport Brass Co., Bridgeport, Conn.
 Bristol Brass Co., Bristol, Conn.
 Chase Rolling Mills Co., Waterbury, Conn.
 Columbia Smelting & Refin. Co., 365 West St., New York
 Eagle Smelting & Refining Wks, 233 Broadway, New York

STERLING-COOPER CO., NEW YORK

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Merchant & Evans, 242 Water St., New York
 Midwest Brass & Copper Co., 6 Church St., New York
 National Brass & Cop. Tube Co., 41 Park Row, New York
 New Jersey Tube Co., Newark, N. J.
 Randolph-Clowes Co., 253 Broadway, New York
 Sandoval Zinc Co., Chicago
 Scoville Mfg Co., Waterbury, Conn.
 Stamford Rolling Mills Co., Springdale, Conn.
 Stamford Underground Cable Co., Pittsburgh
 Titan Metal Co., Milesburg, Pa.

BRASS CASTINGS (See Castings, Brass)

BRASS, Sheet

Amalgamated Products Co., 165 Broadway, New York
 American Brass Co., The, Waterbury, Conn.
 Baltimore Tube Co., Inc., 522 Fifth Av., New York
 Bridgeport Brass Co., Bridgeport, Conn.
 Bristol Brass Co., Bristol, Conn.
 British-American Metal Co., 52 Vanderbilt Av., New York
 Bruce & Cook, 190 Water St., New York
 Central Metal Supply Co., 609 E. Lombard St., Baltimore
 Chase Rolling Mills Co., Waterbury, Conn.
 Clendenin Bros., 220 Broadway, New York
 Cleveland Brass & Copper Mills, Cleveland
 Connecticut Alloyed Metal Co., Bridgeport, Conn.
 Connecticut Brass & Mfg Co., Waterbury, Conn.
 Connecticut Brass Corp., West Cheshire, Conn.
 Detroit Copper & Brass Rolling Mills, Detroit, Mich.
 Ducommun Hardware Co., San Francisco
 Eagle Smelting & Refining Wks, 233 Broadway, New York
 Handy & Harmon, Bridgeport, Conn.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Jolley & Co., J. H., Philadelphia
 Manhattan Brass Co., 332 E. 28th St., New York
 Merchant & Evans, 242 Water St., New York
 Michigan Copper & Brass Co., Detroit, Mich.
 Midwest Brass & Copper Co., 6 Church St., New York
 National Brass & Copper Co., Lisbon, Ohio
 National Brass & Cop. Tube Co., 41 Park Row, New York
 New Jersey Tube Co., Newark, N. J.
 Patterson Bros., 27 Park Row, New York
 Philadelphia Brass Co., Philadelphia
 Plume & Atwood Mfg Co., Thomaston, Conn.
 Randolph-Clowes Co., 253 Broadway, New York
 Riverside Metal Co., Riverside, N. J.
 Rome Brass & Copper Co., Rome, N. Y.
 Sandoval Zinc Co., Chicago
 Scoville Mfg Co., Waterbury, Conn.
 Seymour Mfg Co., Seymour, Conn.
 Stamford Rolling Mills Co., Springdale, Conn.
 Standard Underground Cable Co., Pittsburgh
 Stimpson & Co., E. B., 68 Franklin Av., Brooklyn, N. Y.
 Taunton-New Bedford Copper Co., Taunton, Mass.
 Trumpbour Whitehead Brass & Cop. Co., 309 Canal St., New York

BRASSES, Engine & Shaft Bearing

American Brass Co., The, Waterbury, Conn.
 American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71
 Bridgeport Brass Co., Bridgeport, Conn.
 Chase Rolling Mills Co., Waterbury, Conn.
 Cleveland Brass & Copper Co., Cleveland
 Detroit Cap & Brass Rolling Mill, Detroit, Mich.
 Michigan Copper & Brass Co., Detroit, Mich.
 National Brass & Cop. Tube Co., 41 Park Row, New York
 Rome Brass & Copper Co., Rome, N. Y.
 Scoville Mfg Co., Waterbury, Conn.
 Standard Underground Cable Co., Pittsburgh
 Taunton-New Bedford Copper Co., Taunton, Mass.
 Titan Metal Co., Milesburg, Pa.

BRAZING METAL

American Zinc & Lead Smelt. Co., 120 B'way, New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Michigan Smelting & Refining Co., Detroit, Mich.
 United Amer. Metals Corp., 196 Diamond St., Bklyn, N. Y.

BREAD RACKS

Union Steel Products Co., Ltd., The, Albion, Mich., See p. 2

BREAKERS, Water, Boat

Cuthbert, R. Lee, 6 Prospect Pl., Brooklyn, N. Y.
 Rawles & Co., J. D., Boston
 Richmond Cedar Works, 90 W. Broadway, New York
 (See also Ship Chandlers, Port Data Section)

BROILERS

Union Steel Products Co., Ltd., The, Albion, Mich., See p. 2

BRICKS, Fire, Standard, Split, Wedge & Special

Ashland Fire Brick Co., Ashland, Ky.
 Atlantic Terra Cotta Co., 1170 Broadway, New York
 Baltimore Retort & Fire Brick Co., Hull & Nicholson Sts., Baltimore
 Brooklyn Fire Brick Wks., 88 Van Dyck St., Bklyn, N. Y.
 Cameron Clay Products Co., Cameron, Pa.
 Carborundum Co., The, 72 Park Av., New York
 Carlyle Lubold Co., Portsmouth, Ohio
 Chicago Fire Brick Co., 133 W. Washington St., Chicago
 Chicago Retort Fire Brick Co., 208 So. La Salle St., Chicago
 Climax Fire Brick Co., Climax, Pa.
 Columbus Fire Br. Co., 214 Hartman Bldg, Columbus, Ohio
 Crescent Refractories Co., Curwensville, Pa.
 Crowe & Co., F. T., 411 Globe Bldg., Seattle, Wash.
 Cyrus Bergner Co., 234 N. 23d St., Philadelphia
 Darrow's Rufus Son., Inc., 618 W. 49th St., New York
 Dee Clay Products Co., The Wm. E., Oak Hill, Ohio
 Denver Fire Clay Co., Denver, Col.
 Didier March Co., Perth Amboy, N. J.
 Empire Brick & Supply Co., 103 Park Av., New York
 Evans & Howard Fire Brick Co., St. Louis, Mo.
 Federal Terra Cotta Co., 101 Park Av., New York
 Fiske & Co., Inc., 40 W. 32d St., New York
 Greenpoint Fire Brick Co., 111 Clay St., Brooklyn, N. Y.
 Harbison-Walker Refractories Co., Pittsburgh
 Howard Refractories Co., The, Dorsey, Md.
 Hydraulic Press Brick Co., Colorado Bldg., Washington, D. C.
 Kier Fire Brick Co., Pittsburgh
 Ladede-Christy Products Co., St. Louis, Mo.
 Louisville Fire Brick Co., Highland Park, Ky.
 Mack Engineering & Sup. Co., 123 Liberty St., New York
 Mallinite Co., St. Louis, Mo.
 Maurer & Son, Henry, 420 E. 23d St., New York
 Mushet Co., W. E., San Francisco
 N. Y. Clay Prod. Co., 26 Court St., Brooklyn, N. Y.
 Niles Fire Brick Co., Niles, Ohio
 Ostrander Fire Brick Co., Troy, N. Y.
 Patton Clay Mfg Co., Patton, Pa.
 Paxson Co., Jos. W., 1021 N. Delaware Av., Philadelphia
 Queen's Run Fire Brick Co., Lock Haven, Pa.
 Sayre & Fisher Co., 261 Broadway, New York
 Soisson Fire Brick Co., Connelville, Pa.
 Stevens, F. B., Detroit, Mich.
 Stowe-Fuller Co., Rockefeller Bldg., Chicago

BRONZE, Aluminum (See Aluminum Bronze)

BRONZE BARS, Cored

American Bronze Corp, Berwyn, Pa.
 Bunting Brass & Bronze Co., Toledo, Ohio
 Johnson Bronze Co., New Castle, Pa.
 Lumen Bearing Co., Buffalo
 Mueller Metals Co., Port Huron, Mich.

BRONZE BARS, RODS & SHAPES

American Brass Co., The, Waterbury, Conn.
 Bridgeport Brass Co., Bridgeport, Conn.
 Clendenin Bros., 220 Broadway, New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Johnson Bronze Co., New Castle, Pa.
 Manhattan Brass Co., 332 E. 28th St., New York
 Mueller Metals Co., Port Huron, Mich.
 Railway Steel Spring Co., 30 Church St., New York

BRONZE, Tobin

American Brass Co., Ansonia, Conn.

BRONZE, Liquid & Powdered (See Paint Subhead)**BRONZE, Manganese, Bars & Rods****Phosphor, Bars & Rods**

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71

Clendenin, James, Baltimore

Columbia Smelt. & Refin. Wks., 365 West St., New York

Hampden Brass Co., 262 Liberty St., Springfield, Mass.

Hungerford Brass & Copper Co., U. T., 510 Arch St., Philadelphia

Reeves & Co., 1415 Catherine St., Philadelphia

Richards & Co., Inc., 200 Causeway St., Boston

Standard Underground Cable Co., Wilkins Bldg., Washington, D. C.

Titian Metal Co., Bellefonte, Pa.

Whitehead Metal Products Co., 67 Washington St., Boston

BRONZE, Manganese, Fabricated

Aluminum Castings Co., 6205 Carnegie Av., Cleveland

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71

Baker Foundry & Machine Co., Amesbury, Mass.

Frantz Premier Co., Ivanhoe Rd., Cleveland

Harley Co., Page Blvd., Springfield, Mass.

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Lavin & Sons, R., 713 W. 14th St., Chicago

Leitelt Bros., 7725 S. Chicago Av., Chicago

Little, E. S., 766 Folsom St., San Francisco

McGann & Sons Co., 114 Portland St., Boston

Mueller Metals Co., Port Huron, Mich.

Page Engineering Co., Hull & Claggett Sts., Baltimore

Steele, Inc., 50 Church St., New York

BRONZE, Manganese, Ingot

Ajax Metal Co., Philadelphia

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71

British-American Metal Co., 52 Vanderbilt Av., New York

Cramp & Sons, Ship & Eng. Bldg. Co., Wm. Philadelphia

Eagle Smelting & Refining Co., 233 Broadway, New York

Great Western Smelting & Refining Co., Chicago

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Lumen Bearing Co., Buffalo

McLaughlin's Sons Co., 234 N. 12th St., Brooklyn, N. Y.

Michigan Smelting & Refining Co., Detroit, Mich.

Nassau Smelting & Refin Wks., 603 W. 29th St., New York

Reeves & Sons, P. S., Philadelphia

Sandoval Zinc Co., 410 N. Peoria St., Chicago

BRONZE, Phosphor, Sheet & Strip

Ajax Metal Co., Philadelphia

Amalgamated Products Co., 165 Broadway, New York

Bridgeport Brass Co., Bridgeport, Conn.

British-American Metal Co., 52 Vanderbilt Av., New York

Bunting Brass & Bronze Co., Toledo, Ohio

Clendenin Bros., 220 Broadway, New York

Columbia Iron & Refining Wks., 365 West St., New York

Connecticut Brass Corp., West Cheshire, Conn.

Eagle Smelting & Refining Co., 233 Broadway, New York

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Johnson Bronze Co., New Castle, Pa.

Jolley & Co., J. H., Philadelphia

Merchant & Evans Co., 242 Water St., New York

Midwest Brass & Copper Co., 480 Broome St., New York

National Brass & Cop. Tube Co., 41 Park Row, New York

Patterson Bros., 27 Park Row, New York

Phosphor Bronze Smelting Co., Philadelphia

Sandoval Lime Co., 410 N. Peoria St., Chicago

Seymour Mfg Co., The, Seymour, Conn.

Wellman Bronze Co., Cleveland

Western Block Co., Lockport, N. Y.

BROOMS, Corn

Brooklyn Broom Wks., 495 Flushing Av., Brooklyn, N. Y.

Capital Broom Wks., 125-127 N. Kansas Av., Topeka, Kan.

Cleveland Osborn Manufacturing Co., 5401 Hamilton Av., N., Cleveland

Indianapolis Brush & Broom Mfg. Co., 26 Brush St., Indianapolis, Ind.

Industrial Home for the Blind, 536 Gates Av., Bklyn, N. Y.

Louisville Broom Works, 23 S. 21st St., Louisville, Ky.

Pioneer Broom Co., Amsterdam, N. Y.

U. S. Broom & Brush Co., 130 North Wells St., Chicago

Western Brush Co., 540 W. 12th St., Chicago

BRUSH HOLDERS, Electric

Arnessen Electric Co., Inc., 109 Broad St., New York

Central Electric Co., Chicago

Diehl Mfg Co., Elizabeth, N. J.

General Electric Co., Schenectady, N. Y., see pp. 36-41

Herzog Electric & Engineering Co., San Francisco

Holtzer-Cabot Electric Co., The, 125 Amory St., Boston

Manhattan Electric Supply Co., 17 Park Pl., New York

Northwestern Mfg Co., Milwaukee, Wis.

Tideman Electric Mfg Co., Menominee, Mich.

Triumph Electric Co., Oakley, Cincinnati

Western Electric Co., 151 Fifth Av., New York

BRUSHES, Boiler Tube, Coil Type

Cleveland Osborn Mfg Co., The, Cleveland

Darby & Sons, Edw., Philadelphia

Lay Co., Jas., Ridgeville, Ind.

Manufacturers' Brush Co., 1950 W. 114th St., Cleveland

Meyers Mfg Co., F. J., Hamilton, Ohio

Worcester Brush & Scraper Co., Worcester, Mass.

BRUSHES, Boiler Tube, Spiral Type

Browne, F. W., Farmington, Conn.

Chesterton Co., A. W., Boston

Holcomb Mfg Co., Indianapolis, Ind.

Manufacturers' Brush Co., 1950 W. 114th St., Cleveland

Patterson, Gottfried & Hunter Co., 211 Centre St., New York

Rinn, A. E., Allentown, Pa.

BRUSHES, Boiler Tube, Wire Sectional

Abbott Wire Brush Co., 11 Union St., Boston

Barry & Co., D. J., 83 Barclay St., New York

Browne, F. W., Farmington, Conn.

Burtman, Charles, 91 Fulton St., Boston

Clark, Jas. S., 488 Cherry St., New York

Darby & Sons, Edw., Philadelphia

Flint Co., W. F., Boston

Gerhardt, C., 591 Hudson St., New York

Herold Bros. Co., 62 Public Square, Cleveland

Manufacturers' Brush Co., 1950 W. 114th St., Cleveland

Meyers & Co., F. J., Hamilton, Ohio

Milwaukee Brush Mfg Co., 51 Erie St., Milwaukee, Wis.

Osborn Mfg Co., The, Cleveland

Patterson, Gottfried & Hunter Co., 211 Center St., New York

Peerless Mfg Co., The, New Durham, N. Y.

Rinn, A. E., Allentown, Pa.

Somerville Co., Thos., Washington, D. C.

Strong Machinery & Supply Co., 21 Walker St., New York

BRUSHES, Carbon

Central Electric Co., Chicago

Calebaugh Self-Lubricating Carbon Co., Philadelphia

Corliss Carbon Co., 90 West St., New York

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

Diehl Manufacturing Co., Elizabeth, N. J.

General Electric Co., Schenectady, N. Y., see pp. 36-41

Herzog Electric & Engineering Co., San Francisco

Holtzer-Cabot Electric Co., The, Boston

Le Valley Vitae Carbon Brush Co., 521 W. 23d St., New York

Mallory & Co., Inc., P. R., Port Chester, N. Y.

Marine Electric Co., San Francisco

Mikesell Bros. Co., Chicago

National Carbon Co., Cleveland

Spear Carbon Co., St. Marys, Pa.

Stackpole Carbon Co., St. Marys, Pa.

United States Graphite Co., Saginaw, Mich.

Western Electric Co., 151 Fifth Av., New York

BRUSHES, Casting, Steel Wire

Cleaning, Steel Wire, Handled

File

(See Brushes, Boiler, Tube, Wire, Sectional)

BRUSHES, Paint & Varnish, All Shapes

Biglow Brush Co., 116 S. Register St., Baltimore

Cleveland Osborn Mfg Co., The, 5401 Hamilton Av., N. E., Cleveland

Devoe & Reynolds Co., 101 Fulton St., New York
Kip Brush Co., 447 Greenwich St., New York
Linzer & Sons, David, 338 Broadway, New York
Lucas & Co., John, 521 Washington St., New York
Martin's Sons, J. M. C., 186 Greenwich St., New York
Miles Bros. & Co., 1957 Pitkin Av., Brooklyn, N. Y.
Patterson, Gottfried & Hunter Co., 211 Centre St., New York

Pollack Brush Co., 25-27 N. 4th St., Easton, Pa.
Pushee & Son, J. C., 3 Randolph St., Boston
Rubberset Co., 39 Cortlandt St., New York
Schlegel Mfg Co., Oscar, 124 E. 13th St., New York
Thurston Co., F. W., 1834 So. Clark St., Chicago
United Brush Mfgs., 203 Lafayette St., New York
Washburn & Co., Ira, 906 Central Av., Cincinnati
Whitney Adams Co., 690 Harrison Av., Boston
Wolfe Brush Co., 1805 Beaver Av., Pittsburgh
Wooster Brush Co., Wooster, Ohio
Yates & Co., 762 Folsom St., San Francisco
Zinsser & Co., Wm., 195 William St., New York

BUCKETS, Grab, Iron & Steel

Anderson Evans Co., Chicago
Bartlett & Snow, Cleveland
Brown Hoisting Machinery Co., Cleveland
Browning Co., The, Cleveland
Clyde Iron Works, Duluth, Minn.
Hibben & Co., Chicago
Illinois Malleable Iron Co., Chicago
Jeffrey Mfg Co., Columbus, Ohio
Law & Co., Ernest, 516 Harrison Bldg., Philadelphia
Lawson & Co., F. H., Cincinnati
McMyler Interstate Co., Cleveland
Ohio Locomotive Crane Co., Bucyrus, Ohio
Pittsburgh-Des Moines Steel Co., Pittsburgh
Vulcan Steam Shovel Co., Toledo, Ohio
Weller Mfg Co., Chicago
Wellman-Seaver-Morgan Co., Cleveland
Williams Co., G. H., Erie, Pa.

BUCKETS, Hard Rubber, Acid

American Hard Rubber Co., 11 Mercer St., New York
Biddle, Jas. G., Philadelphia
Luzerne Rubber Co., Trenton, N. J.
Miller-Reese-Hutchinson, Inc., Orange, N. J.
Shaw Insulator Co., Newark, N. J.

BUCKETS, Metal

Acme Boiler Works, Detroit, Mich.
Architectural Cornice & Skylight Works, 4077 Park Av., New York
Cincinnati Galvanizing Co., Cincinnati
Cuyler & Mohler, 611 William St., Baltimore
Geuder, Paeshke & Frey Co., 38 15th St., Milwaukee, Wis.
Junnesson Mfg Co., Hazelton, Pa.
Koven, L. O. & Bro., 154 Ogden Av., Jersey City, N. J.
Lalance & Grosjean Mfg. Co., 299 B'way, New York
Littleford Bros., 453 E. Pearl St., Cincinnati
McNamara Bros. Co., Westport, Md.
Republic Metal Ware Co., Buffalo
Rochester Can Co., Rochester, N. Y.
Rochester Stamp Co., 176 Anderson St., Rochester, N. Y.
Schmitt Metal Products Co., Geo. P., 2d & Madison, Oakland, Cal.

BULLDOZERS

Ajax Mfg Co., 3830 Lakeside Av., Cleveland
Garrison Foundry Co., A., Pittsburgh
Henes, Louis G., 75 Fremont St., San Francisco
Long & Alstatter Co., The, Hamilton, Ohio
Niles-Bement-Pond Co., 111 Broadway, New York
Southark Foundry & Machinery Co., Philadelphia
Toledo Machine & Tool Co., Toledo, Ohio
Watson-Stillman Co., 50 Church St., New York
Wood & Co., R. D., Philadelphia

BUNKS (See Berths & Bunks)

BUNTING, All Colors

American Flag Co., Chicago
Annin & Co., 99 Fulton St., New York, see p. 50
Briggs & Beckman, New Bedford, Mass.

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Fall River Bleachery, Fall River, Mass.
Frederick & Nelson, Seattle, Wash.
Humphrey's Sons, R. A., Philadelphia
Hunter Mfg & Com Co., 58 Worth St., New York
International Flag Co., Jamestown, N. Y.
Spearing & Co., New Orleans, La.
Turner, Harold M., 62 Leonard St., New York
Wellington, Sears & Co., Boston
(See also Ship Chandlers, Port Data Section)

BUOYS, Life, Cork and Metal Ring (See Life Buoys)

BURNERS, Fuel Oil, Marine Boiler

(See Atomisers, also Air Registers)

BURRETTES

Reynolds, Teschner & Volk Co., Inc., 46 Vesey St., New York
Rochester Laboratory Supply Co., Rochester

BURRS, Copper (See Rivets & Burrs, Copper)

BUSHINGS, Bronze and Brass

Aluminum Casting Co., Cleveland
American Bronze Corp, Berwyn, Pa.
American Manganese Bronze Co., Holmesburg, Philadelphia see p. 71
Bellevue Industrial Furnace Co., Detroit, Mich.
Bemis Car Truck Co., Springfield, Mass.
Bloom Flusher Co., Tiffin, Ohio
Bunting Brass & Bronze Co., Toledo, Ohio
Columbus Brass Co., The, Columbus, Ohio
Cramp & Son's Ship & Eng. Bldg. Co., Wm., Philadelphia
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Cross Engineering Co., Carbondale, Pa.
Delaware Brass & Aluminum Co., Muncie, Ind.
Ducommun Hardware Co., San Francisco
Eagle Brass Foundry Co., 21 Spokane St., Seattle, Wash.
Edna Brass Mfg. Co., The, Columbus, Ohio
Franklin Mfg. Co., H. H., Syracuse, N. Y.
Gwyn Engineering Co., Pittsburgh
Johnson Bronze Co., Lancaster, Pa.
Lumen Bearing Co., Buffalo
Magnus Co., Los Angeles
Merriman Bros., Jamaica Plains, Boston
Miami Brass Foundry Co., Dayton, Ohio
Oregon Brass Works, Portland, Ore.
Pacific Block & Forging Co., San Francisco
Rattan Mfg Co., New Haven, Conn.
Stewart Mfg. Corp, 4500 Fullerton Av., Chicago
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
Western Brass Works, Chicago
York Hardware & Brass Works, York, Pa.

BUSHINGS, Insulating, Rubber, Hard

American Hard Rubber Co., 11 Mercer St., New York
Arnesson Electric Co., 109 Broad St., New York
Bryant Electric Co., Bridgeport, Conn.
Central Electric Co., Chicago
Condensite Co., Bloomfield, N. J.
Latham & Co., E. B., 550 Pearl St., New York
Luzerne Rubber Co., Trenton, N. J.
Manhattan Electric Supply Co., 17 Park Place, New York
Miller-Reese Hutchinson, Inc., Orange, N. J.
Nagel Electric Co., W. G., Toledo, Ohio
National Lead Co., 111 Broadway, New York
Philadelphia Elec. Co., The, 132 So. 11th St., Philadelphia
Pittsburgh Electric & Machine Co., Pittsburgh
Shaw Insulator Co., 5 Kirk Pl., Newark, N. J.
Sibley-Pitman Electric Corp, 190 Sixth Av., New York
Watertown Mfg Co., Watertown, Conn.

BUSHINGS, Lava

Crescent Burner Mfg Co., 116 E. 27th St., New York
General Electric Co., Schenectady, N. Y., see pp. 36-41
Latham & Co., E. B., 550 Pearl St., New York
Stanley & Patterson, 23 Murray St., New York
Stewart Mfg Co., D. M., Chattanooga, Tenn.
Western Electric Co., 151 Fifth Av., New York

BUSHINGS, Sheave, Roller Bearing

Ajax Metal Co., 46 Richmond St., Philadelphia
Boston & Lockport Block Co., 33 South St., New York

STERLING-COOPER CO., NEW YORK

Bound Brook Oilless Bearing Co., Bound Brook, N. J.
Brown Co., A. & F., 79 Barclay St., New York
Budd Grate Company, Philadelphia
Damascus Bronze Co., 928 South Av., Pittsburgh
Duplex Roller Bushing Co., Belfast, Me.
Metaline Co., 7 West Av., Long Island City, N. Y.
N. J. Foundry & Machine Co., 90 West St., New York
Standard Roller Bearing Co., 50th & Lancaster Av., Philadelphia

BUTTONS, Push, Non-Watertight, Round, Pear & Midget

Ansonia Electric Co., Ansonia, Conn.
Benjamin Electric Mfg Co., 243 W. 17th St., New York
Bunnell & Co., J. H., 32 Park Place, New York
Central Electric Co., Chicago
Cory & Son, Inc., Chas., Varick & King Sts., New York
Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

Fullerton Electric Co., 21 E. 22d St., New York
Gordon Electric & Mfg Co., Waterville, Conn.
Latham & Co., E. B., 550 Pearl St., New York
Livingston & Co., Inc., J., 70 E. 45th St., New York
Manhattan Electric Supply Co., 17 Park Place, New York
Ostrander & Co., W. R., 371 Broadway, New York
Pittsburgh Electric & Machine Co., Pittsburgh
Shaw Insulator Co., 5 Kirk Place, Newark, N. J.
Western Electric Co., 151 Fifth Av., New York
White Mfg. Co., J. H., 111 No. 3d St., Brooklyn, N. Y.

BUTTONS, Push, Watertight

Arnesson Electric Co., Inc., 109 Broad St., New York
Benjamin Electric Mfg Co., 243 W. 17th St., New York
Butte Engineering & Electric Co., San Francisco
Central Electric Co., Chicago
Cory & Son, Inc., Chas., Varick & King Sts., New York
Couch Co., Inc., S. H., Norfolk Downs, Mass.
Holtzer Cabot Electric Co., The, 125 Amory St., Boston
Inso-Blake Specialty Co., Niagara Falls, N. Y.
Lincoln Electric Works, 1062 Glenlake Av., Chicago
Lovell, F. H., Arlington, N. J.
Manhattan Electric Supply Co., 17 Park Place, New York
Ostrander & Co., W. R., 371 Broadway, New York
Pittsburgh Electric & Machine Co., Pittsburgh
Wetmore-Savage Co., 76 Pearl St., Boston
White Mfg Co., J. H., 111 No. 3d St., Brooklyn, N. Y.

C

CO₂ (See Carbon Dioxide)

CO₂ INDICATORS & RECORDERS

Central Scientific Co., Chicago
Foxboro Co., Foxboro, Mass.
Harger Co., F. D., Buffalo
Hays Corp., Jos. W., Michigan City, Ind.
Sarco Co., Inc., 233 Broadway, New York, see p. 130
Schaeffer & Budenberg Mfg Co., 84 Bway., Bklyn., N. Y.
Tagliabue Mfg Co., Chas. J., 18 33d St., Brooklyn, N. Y.
Uehling Instrument Co., 71 Broadway, New York

CABINETS, Metal (See Lockers, Metal)

CABLE, Electric, Arc Lighting & Welding (See Also Wire and Cable Insulated)
Battery Charging
Brush Holding
Deck
Drydock
Lead Covered
Lighting
Power
Rubber Insulated
Switchboard

General Electric Co., Schenectady, N. Y., see pp. 36-41
Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

Standard Underground Cable Co., Pittsburgh, Pa.
Western Electric Co., 151 Fifth Ave., New York

CABLE, Electric, Basket Weave
Cambric Insulated
Flame Proofed
Marine
Navy
Ocean
Paper Insulated
Submarine

Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

CABLE, Electric, Steel Armored

American Metal Molding Co., Newark, N. J.
American Steel & Wire Co., Chicago
Belden Mfg Co., 2300 S. Western Av., Chicago
Columbia Metal Hose Works, 540 W. 58th St., New York
Eastern Flexible Conduit Co., 41 Gardiner Av., Bkln, N. Y.
Electric Cable Co., 10 E. 43d St., New York
General Electric Co., Schenectady, N. Y., see pp. 36-41
Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

Hazard Manufacturing Co., Wilkes-Barre, Pa.
National Metal Molding Co., Pittsburgh
Okonite Co., Passaic, N. J.
Pratt-Churk Co., Frankford, N. Y.
Roebbling's Sons Co., Jno. A., Trenton, N. J.
Safety Amorite Conduit Co., W. Pittsburgh
Simplex Wire & Cable Co., Boston
Standard Underground Cable Co., Pittsburgh
Triangle Conduit Co., Brooklyn, N. Y.
Trumbull Electric Mfg Co., Plainville, Conn.
United States Steel Products Co., Seattle, Wash.
Western Electric Co., 151 Fifth Av., New York
Youngstown Sheet & Tube Co., Youngstown, Ohio

CABLE, Electric Wire, Bare

American Brass Co., Waterbury, Conn.
American Electrical Works, Phillipsdale, R. I.
American Steel & Wire Co., Chicago
Belden Mfg Co., 2300 S. Western Av., Chicago
Driver-Harris Co., Harrison, N. J.
General Electric Co., Schenectady, N. Y., see pp. 36-41
Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42
National Conduit & Cable Co., Hastings-on-Hudson, N. Y.
New England Electrical Works, Lisbon, N. H.
Roebbling's Sons Co., John A., Trenton, N. J.
Standard Underground Cable Co., Pittsburgh
Waterbury Company, 63 Park Row, New York
Western Electric Co., 151 Fifth Av., New York
Wickwire-Spencer Steel Corp., Worcester, Mass.
Woodward Wight & Co., Ltd., New Orleans, La.

CABLE, Ship (See Chain, Ship Anchor)

CALCIUM CARBIDE

Air Reduction Sales Co., 120 Broadway, New York
Carbic Manufacturing Co., Duluth, Minn.
Heyward Co., Thomas R., Pittsburgh
Union Carbide Co., 42d St. Bldg., New York

CALCIUM CHLORIDE

Babcock & Co., F. W., Toledo, Ohio
Central Construction & Supply Co., Baltimore
Dickinson & Co., J. Q., Malden, W. Va.
Ferguson, Jr., Alex. C., Drexel Bldg., Philadelphia
Grasselli Chemical Co., The, 347 Madison Av., New York
Saginaw Chemical Co., Saginaw, Mich.
Semet-Solvay Co., Syracuse, N. Y.
Westerlin & Campbell Co., Chicago
York-California Construction Co., San Francisco
York Construction & Supply Co., Seattle, Wash.

CALCULATING MACHINES

Adding Mach. Inspt. & Sales Co., 61 Fulton St., New York
Barrett Adding Machine Co., 366 Broadway, New York
Burroughs Adding Machine Co., 217 Broadway, New York
Calculagraph Co., 30 Church St., New York
Comptometer Co., 221 Broadway, New York
Ensign Manufacturing Co., Boston
Felt & Tarrant Manufacturing Co., Chicago
Grubbs & Sheridan, 233 Broadway, New York

Marchant Calculating Machine Co., Oakland, Cal.
 Monroe Calculating Mach. Co., 233 Broadway, New York
 Muller Co., Oscar, 40 Wall St., New York
 Ranson, John E., 30 Church St., New York
 Reuter, Carl H., Philadelphia
 Sundstrand Adding Machine Co., Rockford, Ill.
 U. S. Adding Machine Co., 101 Park Av., New York
 Wahl Adding Machine Co., 232 E. Ohio St., Chicago

CALIPERS, Various, Including Micrometer Calipers

Almond Manufacturing Co., T. R., Ashburnham, Mass.
 Athol Machine Co., Athol, Mass.
 Bowman Edson Co., M. K., 64 Dey St., New York
 Brown & Sharpe, Providence, R. I.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Davis-Hunt-Colister Hdw. Co., 2026 Ontario St., Cleveland
 Godell-Pratt Co., Greenfield, Mass.
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Modern Tool & Mach. Wks., Inc., 350 Mulberry St., Newark, N. J.
 Montgomery & Co., 105 Fulton St., New York
 Niles-Bement-Pond Co., 111 Broadway, New York
 Sargent & Co., 94 Centre St., New York
 Shapleigh Hardware Co., St. Louis, Mo.
 Slocumb Co., J. T., Providence, R. I.
 Starrett Co., S. L., Athol, Mass.
 Williams & Wells, 252 Fulton St., New York

CALKING COTTON

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Davy & Sons, W. O., Jersey City, N. J.
 Stratford Oakum Co., George, Jersey City, N. J., see p. 28
 Turner, Halsey Co., 62 Leonard St., New York
 (See also *Ship Chandlers, Port Data Section*)

CALKING CHISELS (See Chisels for Pneumatic Tools)

CALKING IRONS

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Shipbuilding Products Mfg Co., 179 West St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 (See also *Ship Chandlers, Port Data Section*)

CALKING MALLETS (See Mallets, Calking)

CALORIMETERS, Steam

American Steam Gauge & Valve Mfg Co., Boston
 Schaeffer & Budenburg Mfg Co., Brooklyn, N. Y.

CANS, Gasoline, Non-Explosive (See Also Drums, Paint)

Diener Mfg Co., G. W., Kinzie & Monticello Sts., Chicago
 Justrite Mfg Co., 2061 Southport Av., Chicago
 Knapp Mfg & Supply Co., 241 Water St., New York
 Koven & Bro., L. O., 154 Ogden Av., Jersey City, N. J.
 McNutt Can Sales Co., 83 Chambers St., New York
 Patterson Bros., 27 Park Row, New York
 Sexton Can Co., 228 Franklin St., Boston
 Walsh Mfg Co., Owen, 525 W. 26th St., New York

CANS, Oil

Oil Squirt, Brass

Montgomery & Co., 105 Fulton St., New York
 National Marine Lamp Co., Forestville, Conn.
 Nat'l Metal Spin. & Stamp. Co., 176 Grand St., New York
 Rochester Can Co., Rochester, N. Y.
 Sexton Can Co., 228 Franklin St., Boston

CANVAS, Awning & Sail

Boyle & Co., John, 112 Duane St., New York
 Humphrey's Sons, R. A., Philadelphia
 Turner & Halsey Co., 62 Leonard St., New York
 Wellington, Sears & Co., Boston
 Woodward Wight & Co., New Orleans, La.

CANVAS & CANVAS COVERS, Waterproof

Bendus, J. V., 39 Courtlandt St., New York

CANVAS GOODS, Awnings

Boat Covers
 Hatch Covers
 Sails
 Searchlight Covers
 Tarpaulins

American Sailmaking Corp, 51 Fulton St., Brooklyn, N. Y.
 Atlantic Sales Co., 29 Broadway, New York
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100

Bottger Bros. & Co., Brooklyn, N. Y.
 Briggs & Beckman, New Bedford, Mass.
 Burrows, Inc., Geo. R., 114 South St., New York
 Carpenter & Co., Geo. B., Chicago
 Chandler, Ernest, 22 Beekman St., New York
 Cloud, S. M., 252 Pearl St., New York
 Cousens & Pratt, 274 Sumner St., Boston
 Curtin Corp, John, 71 Front St., New York
 Daniels, Inc., C. R., 115 South St., New York
 Greene Co., C. W., Tampa, Fla.
 Hogshire, Son & Co., Inc., E., Norfolk, Va.
 Jackson & Co., Irwin, Mobile, Ala.
 McLeod & Co., A. H., Mobile, Ala.
 Marine Canvas Supply Co., Pier 7, North River, New York
 Massachusetts Mfg Co., 17 Edinboro St., Boston
 Neptunus Ship Supply Co., Inc., 73 Front St., New York, See p. 14

Pacific Tent & Awning Co., Portland, Ore.

Spearing & Co., New Orleans, La.

CAPSTANS

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100

Chase Machine Co., Cleveland
 Cunningham, Inc., Allan, Seattle, Wash.
 Dake Engine Co., Grand Haven, Mich.
 Diehl Mfg. Co., Elizabeth, N. J.
 Edson Manufacturing Co., 257 Atlantic Av., Boston
 Flory Mfg Co., S., Bangor, Pa.
 Ford & Geirrine, San Francisco
 Fox Bros. & Co., 126 Lafayette St., New York
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, s. p. 30
 Hesse-Martin Iron Works, Portland, Ore.
 Hyde Windlass Co., Bath, Me.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93
 Llewellyn Iron Works, Los Angeles, Cal.
 Main Electric Co. Works, The, 25 Commercial St., Portland, Me.
 Main Iron Works, San Francisco
 Mundy Hoisting Engine Co., J. S., Newark, N. J.
 National Hoisting Engine Co., Harrison, N. J.
 Nelson, Lodge & Snyder, Philadelphia
 Superior Iron Works, Superior, Wis.

CARAFES, Stateroom (See Chinaware, Also Glassware)

CARBON, Plate

Central Electric Co., Chicago
 Chapin Co., Chas. E., 201 Fulton St., New York
 Fleck Carbon Co., 71 West Broadway, New York
 Herzog Electric & Engineering Co., San Francisco
 Killoch Co., David, 57 Murray St., New York
 Latham & Co., E. B., 550 Pearl St., New York
 Manhattan Elec. Sup. Co., 17 Park Pl., New York
 Mickesell Bros. Co., 176 N. La Salle St., Chicago
 National Carbon Co., Cleveland
 Ostrander & Co., W. R., 371 Broadway, New York
 Spear Carbon Co., St. Marys, Pa.
 Stackpole Carbon Co., St. Marys, Pa.

CARBON DIOXIDE

American Carbonia Machy Co., Grand Rapids, Mich.
 Kroeschell Bros., Ice Machine Co., Chicago
 Wittenmeier Machy Co., Chicago

CARBON HOLDERS (See Brush Holders, Electric)

CARBONS, Arc Lamp, Cored

Adams-Bagnall Electric Co., Cleveland
 Arnessen Electric Co., 109 Broad St., New York
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Central Electric Co., Chicago
 Killoch Co., David, 57 Murray St., New York
 Latham & Co., E. B., 550 Pearl St., New York
 National Carbon Co., Inc., Cleveland
 Ostrander & Co., W. R., 371 Broadway, New York
 Pease Co., C. F., Chicago

Spear Carbon Co., St. Marys, Pa.
 Stanley & Patterson, West & Hubert Sts., New York
 Western Electric Co., 151 Fifth Ave., New York

CARBONS, Arc Lamp, Covered

Adams-Bagnall Electric Co., Cleveland
 Latham, E. B., Pearl St., New York
 Pease Co., The C. F., Chicago
 Spear Carbon Co., St. Marys, Pa.
 Western Electric Co., 151 Fifth Av., New York

CARBONS, Searchlight, Negative & Positive Pairs

Arnessen Electric Co., 109 Broad St., New York
 Central Electric Co., Chicago
 Herzog Electric & Engineering Co., San Francisco
 Latham & Co., E. B., 550 Pearl St., New York
 National Carbon Co., Cleveland
 Ostrander & Co., W. R., 371 Broadway, New York
 Spear Carbon Co., St. Marys, Pa.
 Stanley & Patterson, West & Hubert Sts., New York
 Western Electric Co., 151 Fifth Av., New York
 Wetmore-Savage Co., 76 Pearl St., Boston

CARBORUNDUM (See Abrasives)

CARGO LIGHTS & REFLECTORS

Benjamin Electric Mfg Co., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Electric & Engineering Co., San Francisco
 Horne Mfg Co., Mercer & Colgate Sts., Jersey City, N. J.
 Western Electric Co., 151 Fifth Av., New York

CARGO NETS, Chain

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
 United States Chain & Forging Co., Union Arcade, Pittsburgh, See p. 15

CARGO NETS, Rope (See Nets, Cargo)

CARPETS (See Rugs)

CASE HARDENING BOXES

Johnson & Co., Isaac G., Spuyten Duyvil, New York
 Quigley Furnace & Specialties Co., 26 Cortland St., New York
 Swedish Crucible Steel Co., Detroit, Mich.

CASE HARDENING COMPOUND

Anti-Borax Compound Co., Ft. Wayne, Ind.
 Bowman-Edson Co., M. K., 65 Dey St., New York
 Finkell, Wm. T., 103 Maiden Lane, New York
 Ideal Case Hardening Compound Co., 107 Water St., New York
 Kasenit Co., 11 Water St., New York
 Rogers & Hubbard Co., The, Middletown, Conn.
 Sementa Carbonizing Co., 30 Church St., New York

CASTERS, Metal & Lignum Vitae

Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Burns & Bassick Co., Bridgeport, Conn.
 Duer & Sons, Jno., 36 S. Charles St., Baltimore
 Faultless Caster Co., Evansville, Ind.
 Foster, Merriam & Co., Meriden, Conn.
 Gould-Mercereau Co., 52 W. 38th St., New York
 Hibbard, Spencer Bartlett Co., State St., Chicago
 Phoenix Caster Wks, State & Bates Sts., Indianapolis, Ind.
 Sargent & Co., 110 Centre St., New York
 Schenck, M. B., Meriden, Conn.
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 Universal Caster & Fdry Co., Bridgeport, Conn.
 Wrightsville Hardware Co., Wrightsville, Pa.

CASTINGS, Aluminum

Aetna Brass Mfg Co., Cleveland
 Aluminum Castings Co., Cleveland
 Aluminum Co. of America, Pittsburgh
 American Foundry Co., Inc., Newark, N. J.
 Amesbury Brass & Foundry Co., Amesbury, Mass.
 Anchor Brass & Aluminum Co., Cincinnati
 Anderson Foundry, 218 N. Ann St., Chicago
 Baker Foundry & Machine Co., Amesbury, Mass.
 Bay View Foundry Co., Sandusky, Ohio
 Bethlehem Steel Co., Bethlehem, Pa.
 Bosworth Ard Mach & Fdry Co., Anniston, Ala.

Bridgeport Dioxidized Bronze & Metal Co., Bridgeport, Conn.

Brightwood Bronze Foundry Co., Springfield, Mass.
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Buffalo Bronze Die Cast Corp., Buffalo
 Capital Brass Works, Detroit, Mich.
 Caskey's Brass & Bronze Wks, Philadelphia
 Cincinnati Aluminum Casting Co., Cincinnati
 Clayton & Lambert Mfg Co., Detroit, Mich.
 Cleveland Electric Metals Co., Cleveland
 Columbia Smelting & Refin Wks, 365 West St., New York
 Columbian Bronze Corp, 522 Fifth Av., New York, see p. 72

Columbus Brass Co., Columbus, Ohio
 Dayton Brass Casting Co., Dayton, Ohio
 Delaware Brass & Aluminum Co., Muncie, Ind.
 Detroit Lubricator Co., Detroit, Mich.
 Eagle Brass Foundry Co., 21 Spokane St., Seattle, Wash.
 Edro-Richardson Brass Co., Baltimore
 Enterprise Foundry Co., San Francisco
 Gerline Brass Fdry Co., Kalamazoo, Mich.
 Gibby Fdry Co., East Boston
 Gilbert & Sons Co., St. Louis, Mo.
 Greenberg's Sons Co., San Francisco
 Hampden Brass Co., Springfield, Mass.
 Harley Co., Page Blvd., Springfield, Mass.
 Holmes Bronze Co., Wm. G., Bedford, Ohio
 Jenkins Mfg Co., 20 Vesey St., New York
 Johnson Bronze Co., New Castle, Pa.
 Lavin & Sons, R., 715 W. 14th St., Chicago
 Law & Co., Ernest, Philadelphia
 Lawrenceville Bronze Co., Pittsburgh
 Levering Bros., 200 Key Highway, Baltimore
 Levett & Co., Walker, M., 419 E. 23d St., New York
 Lietelt Bros., 7725 So. Chicago Av., Chicago
 Little, H. S., San Francisco
 McKenna Brass & Mfg Co., Pittsburgh
 Magnus Co., Los Angeles
 Maryland Brass & Metal Wks, Baltimore
 Mills Brass Co., Wm. H., Port Chester, N. Y.
 Monarch Brass Co., Cleveland
 Monumental Bronze Co., Bridgeport, Conn.
 Mueller Metals Co., Port Huron, Mich.
 Nassau Smelting & Refin. Wks, 603 W. 29th St., New York
 National Brass Mfg Co., Cincinnati
 National Lead Co., 111 Broadway, New York
 Northwestern Steel & Iron Co., Eau Claire, Wis.
 Norwalk Foundry & Mach Co., Norwalk, Conn.
 Oberdorfer Brass Co., Syracuse, N. Y.
 Pekor Iron Works, Columbus, Ohio
 Priemer Co., Franz, Cleveland
 Reading Brass Works, Reading, Pa.
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Seligman, Arthur, 165 Broadway, New York
 Shoop Bronze Co., Tarentum, Pa.
 Saturn Foundry & Mach Co., Wheeling, W. Va.
 Springfield Brass Co., Springfield, Ohio
 Standard Brass Foundry, Cleveland
 Stanley Bronze Co., Bridgeport, Conn.
 Star Aluminum Co., Ashland, Ohio
 Steele, Inc., R. B., 50 Church St., New York
 Stowell Co., So. Milwaukee, Wis.
 Union Brass & Metal Mfg. Co., St. Paul, Minn.
 United Smelting & Aluminum Co., New Haven, Conn.
 Vanadium Metals Co., Groton, Conn.
 Watson, Frye Co., Ltd., Bath, Me.
 Werner & Sons, Inc., John, Rochester, N. Y.
 Western Brass Mfg Works, Chicago
 Wheeling Bronze Casting Co., Wheeling, W. Va.
 White & Bro., Inc., N. A. Bldg., Philadelphia
 Williamson & Co., R., Washington & Jefferson Sts., Chicago
 Williams & Son, Inc., E. A., 111 Plymouth St., Jersey City, N. J.
 Wright Machine Co., The, Owensboro, Ky.

CASTINGS, Brass & Bronze

Aetna Brass Manufacturing Co., Cleveland
 Allan & Son, A., Harrison, N. J.
 American Bronze Corp., Berwyn, Pa.
 American Foundry Co., Inc., Newark, N. J.
 American Injector Co., Detroit, Mich.

STERLING-COOPER CO., NEW YORK

American Steam Gauge & Valve Co., Boston
 Ashton Valve Co., The, 161 First St., Cambridge, 41, Mass., see p. 111
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Bridgeport Brass Co., Bridgeport, Conn.
 Buckeye Iron & Brass Works, Dayton, Ohio
 Budd Grate Co., Philadelphia
 Charleston D. D. & Mach Co., Charleston, S. C.
 Clark Electric & Mfg Co., The, 149 Broadway, New York
 Columbian Bronze Corp., 522 Fifth Av., New York, see p. 72
 Cramp & Son Ship & Eng. Bldg. Co., Wm., The, Philadelphia
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Delaware Brass & Aluminum Co., Muncie, Ind.
 Doran Brass Foundry Co., Seattle, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Eagle Brass Foundry Co., Seattle, Wash.
 Erie Brass Co., Erie, Pa.
 Etowah Foundry & Machine Co., Gadsden, Ala.
 Eynon-Evans Mfg Co., Philadelphia
 Fletcher & Co., W. & A., Hoboken, N. J.
 Griscom-Russell Co., 90 West St., New York
 Johnson Bronze Co., New Castle, Pa.
 Kelby & Jones Co., Greensburg, Pa.
 Keystone Bronze Co., Pittsburgh
 Lebanon Brass Mfg. Co., Lebanon, Pa.
 Levering Bros., Baltimore
 Levett Co., Walker M., 419 E. 23d St., New York
 Ludlow Valve Mfg Co., Troy, N. Y., see p. 123
 Lunkenheimer Co., Cincinnati
 McClave-Brooks Co., Scranton, Pa.
 McKinn Foundry & Machine Co., Lockport, N. Y.
 Magnus Co., Los Angeles
 Martin Brass Foundry, Providence, R. I.
 Michigan Smelting & Refining Co., Detroit, Mich.
 Nelson Lodge & Snyder, Widener Bldg., Philadelphia
 Niagara Brass Mfg Co., Buffalo
 Oregon Brass Works, Portland, Ore.
 Pacific Metal Works, San Francisco
 Powell Co., Wm., Cincinnati
 Precision Casting Co., Syracuse, N. Y.
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67
 Rinebolt Foundry Co., Huntington, Ind.
 Rostand Mfg Co., Milford, Conn.
 Sandusky Foundry & Machine Co., Sandusky, Ohio
 Standard Brass Foundry Co., Cleveland
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Williams & Sons, Inc., E. A., 111 Plymouth St., Jersey City, N. J.
 Williams Valve Co., The D. T., Cincinnati
 Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill, Philadelphia, see p. 124

CASTINGS, Bronze, Manganese

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71
 Columbian Bronze Corp., 522 Fifth Av., New York, see p. 72
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cramp & Sons Ship & Eng. Bldg. Co., Wm., Philadelphia
 Doran Brass Foundry Co., Seattle, Wash.
 Hyde Windlass Co., Bath, Me.
 Trout Co., H. G., Buffalo, see p. 73
 Vanadium Metals Co., Groton, Conn.

CASTINGS, Bronze, Phosphor

Nolte Brass Co., Springfield, Ohio
 Phosphor & Bronze Smelting Co., 2200 Washington Av., Philadelphia

CASTINGS, Copper

Allan & Son, A., Harrison, N. J.
 American Copper Fdry Co., Inc., Newark, N. J.
 Buckeye Iron & Brass Works, Dayton, Ohio
 D'Este Co., Julian, 83 Barclay St., New York
 Keystone Bronze Co., Pittsburgh

CASTINGS, Die

Acme Die Casting Corp., 87 35th St., Brooklyn, N. Y.
 Barnhart Bros. & Spindler, Chicago
 Buffalo Bronze Die Casting Corp., Buffalo
 Die Casting Co., of N. J., Irvington, N. J.
 Doehler Die Casting Co., 9th St., Brooklyn, N. Y.
 Edna Brass Mfg Co., Cincinnati
 Erie Bronze Co., Erie, Pa.
 Essex Foundry Co., Murray St., Newark, N. J.
 Faries, Mfg Co., Decatur, Ill.
 Flour City Ornamental Iron Co., Minneapolis, Minn.
 Franklin Die Casting Corp., Syracuse, N. Y.
 Gibby Foundry Co., East Boston, Mass.
 Heywood Bros. & Wakefield Co., Baltimore
 Kahl Iron Foundry, Fred'k., Detroit, Mich.
 Latrobe Die & Casting Co., Latrobe, Pa.
 Light Mfg & Fdry Co., Pottstown, Pa.
 Lough Bros., 90 West St., New York
 Lumen Bearing Co., Buffalo
 Machine Metal Works, Inc., 83 Walker St., New York
 Milwaukee Die Casting Co., Milwaukee, Wis.
 Mueller Metals Co., Port Huron, Mich.
 National Lead Co., 111 Broadway, New York
 Union Steel Castings Co., Pittsburgh
 Western Crucible Steel Casting Co., Minneapolis, Minn.

CASTINGS, Gray Iron

Adams Fdry Co., Inc., Wm., Philadelphia
 Aetna Fdry & Mach Co., The, Warren Ohio
 Alexander & Garsed, Charlotte, N. C.
 American Car & Foundry Co., 165 Broadway, New York, see p. 99
 American Cast Iron Pipe Co., Birmingham, Ala.
 American Fdry Mfg Co., St. Louis, Mo.
 Atlantic Foundry Co., Akron, Ohio
 Baker Mfg Corp., Saratoga Springs, N. Y.
 Bass Fdry & Machine Co., Fort Wayne, Ind.
 Bay City Fdry & Machy Co., Bay City, Mich.
 Bay View Foundry Co., Sandusky, Ohio
 Berks Fdry & Mfg Co., Berks, Pa.
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Birdsboro Steel Fdry & Mach Co., Birdsboro, Pa.
 Birmingham Iron Foundry, Derby, Conn.
 Bosworth Ard Mach & Foundry Co., Anniston, Ala.
 Bradley & Sons, Inc., C. C., Syracuse, N. Y.
 Brady Fdry Co., The Jas. A., Chicago
 Budd Grate Co., Philadelphia
 Buffalo Fdry & Mach Co., Buffalo
 Builders' Iron Foundry, Providence, R. I.
 Builders' Iron & Steel Co., East Cambridge, Mass.
 Burgiss & Sons, Chas. H., Beloit, Wis.
 Burhorn Co., Edwin, 25 W. Broadway, New York
 Caldwell & Son Co., H. W., Chicago
 Caroline Fdry Co., The, Baltimore
 Casey-Hedges Co., Chattanooga, Tenn.
 Central Foundry Co., 90 West St., New York
 Central Iron Works, Stevens Point, Wis.
 Centre Foundry & Mach Co., Wheeling, W. Va.
 Chattanooga Car & Fdry Co., Chattanooga, Tenn.
 Chester Steel Castings Co., Chester, Pa.
 Chickasaw Mach & Foundry Co., Memphis, Tenn.
 Chisholm-Moore Mfg Co., Cleveland
 Christopher & Simpson Iron Wks., St. Louis, Mo.
 City Foundry Co., Cleveland
 Clyde Iron Works, Duluth, Minn.
 Cole Mfg Co., R. D., Newnan, Ga.
 Covell Mfg Co., Benton Harbor, Mich.
 Covington Machine Co., Covington, Va.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Dake Engine Co., Grand Haven, Mich.
 Davis Fdry & Mach Wks, Rome, Ga.
 Dayton Malleable Iron Co., Dayton, Ohio
 De Mattia Bros., Inc., Garfield, N. J.
 Diamond Mfg Co., Wyoming, Pa.
 Doud-Mac Farlane Machy Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Eastern Malleable Iron Co., The, Naugatuck, Conn.
 Eastwood Co., Benjamin, Paterson, N. J.
 Enterprise Fdry Co., San Francisco
 Etowah Foundry & Mach Co., Gadsden, Ala.

STERLING-COOPER CO., NEW YORK

Eureka Mfg Co., Lincolnton, N. C.
 Fairmount Fdry Co., Philadelphia
 Farrar & Trefts, Inc., Buffalo
 Farrell Fdry & Mach Co., Ansonia, Conn.
 Fate Co., J. D., Plymouth, Ohio
 Ferro Mach & Fdry Co., Cleveland
 Flory Mfg Co., S., Bangor, Pa.
 Franklin Mach Co., Providence, R. I.
 Frederick Iron & Steel Co., Frederick, Md.
 Fuller-Lehigh Co., Fullerton, Pa.
 Fulton Fdry & Mach Co., Cleveland
 Gehl Bros. Mfg Co., West Bend, Wis.
 Gray Iron Foundry Co., Reading, Pa.
 Great Lakes Engineering Wks, 5 Nassau St., New York
 Greensburg Fdry & Mach. Co., Jeannette, Pa.
 Hanchett Swage Works, Big Rapids, Mich.
 Hendy Iron Works, Joshua, San Francisco
 Hilles & Jones, Wilmington, Del.
 Hooven, Owens, Rentschler Co., The, Hamilton, Ohio,
 see pp. 84-91

Howard Iron Works, Buffalo
 Hubbard Steel Fdry Co., East Chicago, Ill.
 Hyde Park Foundry & Mach Co., Hyde Park, Pa.
 Ide & Sons, A. L., Springfield, Ill.
 Illinois Malleable Iron Co., Chicago
 Independent Foundry Co., Portland, Ore.
 Industrial Works, Bay City, Mich.
 Jeffrey Mfg Co., Columbus, Ohio
 Jewett & Co., Buffalo
 Johnson & Co., Isaac G., Spuyten Duyvil, New York
 Jones Fdry & Mach Co., W. A., Chicago
 Kelly & Jones Co., Greensburg, Pa.
 Kennedy Foundry Co., Baltimore
 Kent Machine Co., Kent, Ohio
 Kling Bros. Engineering Works, Chicago
 Lake Erie Engineering Works, Buffalo
 Lansdale Fdry Co., Lansdale, Pa.
 Leavitt Mfg Co., Urbana, Ill.
 Lebanon Gear & Mach Wks, Lebanon, Pa.
 Levering Bros., 200 Key Highway, Baltimore
 Llewellyn Iron Works, Los Angeles
 Lunkenheimer Co., Cincinnati
 Lynchburg Fdry Co., Lynchburg, Va.
 McClave-Brooks Co., Scranton, Pa.
 McKinney & Son, James, Albany, N. Y.
 Main Iron Works, San Francisco
 Marshall Foundry Co., Pittsburgh
 Mecklenburg Iron Works, Charlotte, N. C.
 Mesta Machine Co., Pittsburgh
 Metals Production Equipment Co., Springfield, Mass.
 Modern Iron Works, Quincy, Ill.
 Moffatt & Co., Frank D., 200 Fifth Av., New York
 Morgan Engineering Co., Alliance Ohio
 Munson, E. G., Utica, N. Y.
 National Casting Co., Marietta, Pa.
 National Fdry & Mfg Co., Williamsport, Pa.
 Nazareth Fdry & Mach Co., Nazareth, Pa.
 Nelson, Lodge & Snyder, Philadelphia
 Nelsonville Fdry & Mach Co., Nelsonville, Ohio
 Newman Machine Works, Greensboro, N. C.
 Norwalk Iron Works, So. Norwalk, Conn.
 Peninsula Iron Works, Portland, Ore.
 Penn Foundry & Mach Co., Bath, Pa.
 Penn Fdry & Mfg Co., Reading, Pa.
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Phila-
 delphia, see p. 18
 Phoenix Iron Works, Meadville, Pa.
 Pittsburgh Valve, Fdry & Constr Co., Pittsburgh
 Portland Fdry Co., Portland, Conn.
 Portsmouth Engine Co., The, Portsmouth, Ohio
 Powell Co., The Wm., Cincinnati
 Reading Iron Co., Reading, Pa.
 Reading Valve & Fittings Co., Reading, Pa.
 Red Jacket Mfg Co., Davenport, Iowa
 Richmond Hill Fdry Co., Richmond Hill, L. I.
 Safety First Mfg Co., Alexandria, Va.
 Simpson Fdry & Engineering Co., Newark, Ohio
 Somerville Iron Fdry Co., Somerville, Mass.
 Stearns & Co., E. C., Syracuse, N. Y.
 Stowell Co., The, So. Milwaukee, Wis.
 Stuart & Peterson Co., Burlington, N. J.
 Sun Shipbuilding Co., Chester, Pa.

Superior Engineering Works, York, Pa.
 Taylor-Wilson Mfg Co., McKees Rocks, Pa.
 Thatcher Propeller & Fdry Corp, Albany, N. Y.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Treadwell Engineering Co., 140 Cedar St., New York
 Troy Fdry Co., M. H., Troy, N. Y.
 Turner & Seymour Mfg Co., Torrington, Conn.
 Ulster Foundry Co., Kingston, N. Y.
 Union Mfg Co., New Britain, Conn.
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 United Engineering & Fdry Co., Pittsburgh
 United Mach & Mfg Co., Canton, Ohio
 U. S. Cast Iron Pipe & Fdry Co., Burlington, N. J.
 Universal Fdry Co., Oshkosh, Wis.
 Virginia Iron, Coal & Coke Co., Pulaski, Va.
 West Coast Iron Works, Seattle, Wash.
 Western Fdry Co., San Francisco
 Wheeling Mold & Fdry Co., Wheeling, W. Va.
 Wheland Co., The, Chattanooga, Tenn.

CASTINGS, Gun Iron

Buffalo Foundry & Machine Co., Buffalo
 Johnson & Co., Isaac, G., Spuyten Duyvil, New York

CASTINGS, Malleable

Acme Steel & Malleable Iron Works, Inc., Buffalo
 American Cast Iron Pipe Co., Birmingham, Ala.
 American Malleable Castings Co., Marion, Ohio
 Baltimore Malleable Iron & Steel Casting Co., Baltimore
 Belle City Malleable Iron Co., Racine, Wis.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Chain Belt Co., Milwaukee, Wis.
 Chisholm-Moore Mfg Co., Cleveland
 Clyde Iron Works, Duluth, Minn.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Decatur Malleable Iron Co., Decatur, Ill.
 Devlin Mfg Co., Thos., Philadelphia
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Eastern Malleable Iron Co., The, Naugatuck, Conn.
 Falk Co., Milwaukee, Wis.
 Fanner Mfg. Co., Cleveland
 Federal Malleable Co., West Allis, Wis.
 General Malleable Co., The, Warren, Ohio
 Industrial Supply & Equipment Co., Philadelphia
 Illinois Malleable Iron Co., Chicago
 Jeffrey Mfg Co., Columbus, Ohio
 Jewell Steel & Malleable Co., San Francisco
 Johnson & Co., Isaac G., Spuyten Duyvil, New York
 Kalamazoo Malleable Iron Co., Kalamazoo, Mich.
 Kelly & Jones Co., Greensburg, Pa.
 Lakeside Malleable Casting Co., Racine, Wis.
 Lancaster Foundry Co., Lancaster, Pa.
 Malleable Iron Fittings Co., Branford, Conn.
 National Malleable Casting Co., Cleveland
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Phila-
 delphia, see p. 18

Stowell Co., The, So. Milwaukee, Wis.
 Temple Malleable Iron & Steel Co., Philadelphia
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 Wehrle Co., Newark, Ohio

CASTINGS, Monel Metal

Bayonne Casting Co., Bayonne, N. J.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Eagle Brass Foundry Co., 21 Spokane St., Seattle, Wash.
 International Nickel Co., 43 Exchange Place, New York
 Supplee-Biddle Hardware Co., Philadelphia

CASTINGS, Semi-Steel

Allegheny Foundry & Machine Co., Glassmere, Pa.
 Bay View Foundry Co., The, Sandusky, Ohio
 Best Steel Casting Co., San Francisco
 Birmingham Iron Foundry, Derby, Conn.
 Bowler Foundry Co., Cleveland
 Brady Foundry Co., Jas. A., Chicago
 Caroline Foundry Co., The, Baltimore
 Central Iron Works, Stevens Point, Wis.
 Clow & Sons, James B., Chicago
 Clyde Iron Works, Duluth, Minn.
 Columbia Iron Works, Chattanooga, Tenn.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Delaware River Steel Co., Chester, Pa.
 Eastern Malleable Iron Co., The, Naugatuck, Conn.
 Farrar & Trefts, Inc., Buffalo
 Farrell Foundry & Machine Co., Ansonia, Conn.
 Fuller-Lehigh Co., Fullerton, Pa.
 Garden City Foundry Co., Chicago
 Hilles & Jones Co., Wilmington, Del.
 Hooven, Owens, Rentschler Co., The, Hamilton, Ohio,
 see pp. 84-91

Independent Foundry Co., Portland, Ore.
 King Foundry Co., Chicago
 McLain-Carter Furnace Co., Milwaukee, Wis.
 Malleable Iron Fittings Co., Branford, Conn.
 Metal Products Co., Boston
 Morgan Engineering Co., Alliance, Ohio
 Pangborn Corp., Hagerstown, Md.
 Pittsburgh Valve Foundry & Constr. Co., Pittsburgh
 Roberts & Mander Stove Co., Philadelphia
 Safety First Mfg. Co., Alexandria, Va.
 Smith Co., T. L., Milwaukee, Wis.
 Trout Co., H. G., Buffalo, see p. 73
 West Steel Casting Co., Cleveland

CASTINGS, Steel (See Also Other Castings, Steel)

Acme Steel Co., Akron, Ohio
 Allison & Co., Chester, Pa.
 American Steel Casting Co., Chester, Pa.
 American Steel Foundries, Chicago
 Apex Steel Corp., 50 Church St., New York
 Atlantic Steel Casting Co., Chester, Pa.
 Atlas Steel Casting Co., Buffalo
 Bayonne Steel Casting Co., Bayonne, N. J.
 Best Steel Casting Co., San Francisco
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100

Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
 Canton Steel Foundry Co., Canton, Ohio
 Carbon Steel Casting Co., Lancaster, Pa.
 Central Foundry Co., 90 West St., New York
 Chester Steel Castings Co., Chester, Pa.
 Chicago Steel Foundry Co., Chicago
 Connecticut Electric Steel Co., Inc., Hartford, Conn.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crucible Steel Casting Co., Lansdowne, Pa.
 Detroit Steel Casting Co., Detroit, Mich.
 Duquesne Steel Foundry Co., Pittsburgh
 Electric Steel Foundry, Portland, Ore.
 Emery Steel Casting Co., Baltimore
 Erie Forge Co., Erie, Pa.
 Falk Co., Milwaukee, Wis.
 Federal Steel Foundry Co., Chester, Pa.
 Ferguson & Lange Foundry Co., Chicago
 Gerlinger Steel Casting Co., Milwaukee, Wis.
 Hubbard & Co., Chas., 81 Fulton St., New York
 Hubbard Steel Foundry Co., East Chicago, Ill.
 Johnson & Co., Isaac G., Spuyten Duyvil, New York
 Kelly & Jones Co., Greensburg, Pa.
 Lacy & Co., Jas. J., Baltimore
 Llewellyn Iron Works, Los Angeles
 Lombard Iron Works, Augusta, Ga.
 Lough Bros., 90 West St., New York
 Malleable Iron Fittings Co., Branford, Conn.
 Massillon Steel Casting Co., Massillon, Ohio
 Maynard Electric Steel Casting Co., Milwaukee, Wis.
 Mesta Machine Co., Pittsburgh
 Millburg Steel Foundry Co., Millburg, Mass.
 Milwaukee Steel Foundry Co., Milwaukee, Wis.
 Modern Steel Casting Co., Milwaukee, Wis.
 Moffatt & Co., Frank D., 200 Fifth Av., New York
 Morgan Engineering Co., Alliance, Ohio
 National Car Coupler Co., Attica, Ind.
 National Steel Casting Co., Montpelier, Ind.
 Nelson, Lodge & Snyder, Philadelphia
 Ohio Steel Foundry Co., Springfield, Ohio
 Otis Steel Co., Cleveland
 Penn Seaboard Steel Corp., Franklin Trust Bldg., Phila-
 delphia, see p. 18
 Pittsburgh Iron & Steel Foundries Co., Pittsburgh
 Reading Steel Casting Co., Reading, Pa.
 Reliance Steel Casting Co., Pittsburgh
 Riverside Steel Casting Co., Newark, N. J.
 Sharon Foundry Co., Sharon, Pa.

Sivyer Steel Casting Co., Milwaukee, Wis.
 Standard Steel Works Co., Philadelphia
 Strong Steel Foundry Co., Buffalo
 Swedish Crucible Steel Co., Milwaukee, Wis.
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
 Temple Malleable Iron & Steel Co., Philadelphia
 Ulster Foundry Corp., Kingston, N. Y.
 Union Spring & Mfg. Co., Pittsburgh
 Union Steel Casting Co., Pittsburgh

CASTINGS, Steel, Crucible

Connelly Steel Casting Co., Chelsea, Mass.
 Crucible Steel Castings Co., Lansdowne, Pa.
 Damascus Crucible Steel Casting Co., New Brighton, Pa.
 Fair & Son, Inc., S., Saginaw, Mich.
 Lundin Steel Casting Co., Neponset, Mass.
 Millbury Steel Fdry Co., Millbury, Mass.
 Racine Steel Casting Co., Racine, Wis.
 R. I. Crucible Steel Casting Co., Pawtucket, R. I.
 Standard Crucible Steel Casting Co., Milwaukee, Wis.
 Western Crucible Steel Casting Co., Minneapolis, Minn.
 Western Steel Casting Co., Cleveland

CASTINGS, Steel, Electric

American Steel Foundries, Chicago (To 40,000 lbs.)
 Best Steel Casting Co., San Francisco
 Bethlehem Steel Co., Bethlehem, Pa.
 Dayton Steel Foundry Co., Dayton, Ohio
 Electric Steel Co., Chicago
 Electric Steel Foundry, Portland, Ore.
 Fair & Son, Inc., S., Saginaw, Mich.
 Gerlinger Steel Casting Co., Milwaukee, Wis.
 Lebanon Steel Foundry, Lebanon, Pa.
 Michigan Steel Casting Co., Detroit, Mich.
 Millbury Steel Foundry Co., Millbury, Mass.
 Milwaukee Steel Foundry Co., Milwaukee, Wis.
 New England Steel Castings Co., E. Longmeadow, Mass.
 Niagara Electric Steel Corp., No. Tonawanda, N. Y.
 Otis Elevator Co., Buffalo (To 5,000 lbs.)
 Racine Steel Casting Co., Racine, Wis.
 Sivyer Steel Casting Co., Milwaukee, Wis.
 Stowell Co., The, Milwaukee, Wis.
 Treadwell Engineering Co., Easton, Pa.

CASTINGS, Steel Large

(Over 40,000 Pounds)

Bethlehem Steel Co., Bethlehem, Pa.
 Falk Co., The, Milwaukee, Wis.
 McIntosh & Hemphill Co., Pittsburgh
 Mesta Machine Co., Pittsburgh
 Otis Steel Co., Cleveland
 Wheeling Mould & Foundry Co., Wheeling, W. Va.

(To 40,000 Pounds)

American Steel Foundries, Chicago
 Chester Steel Casting Co., Chester, Pa.
 Detroit Steel Casting Co., Detroit, Mich.
 Federal Steel Foundry Co., Chester, Pa.
 Sterling Steel Foundry Co., Braddock, Pa.
 Union Steel Casting Co., Pittsburgh
 United Engineering & Foundry Co., Pittsburgh

CASTINGS, Steel, Manganese

American Manganese Steel Co., Chicago
 Bethlehem Steel Co., So. Bethlehem, Pa.
 Columbia Steel Co., San Francisco
 Milwaukee Steel Foundry Co., Milwaukee, Wis.
 Penn Seaboard Steel Corp., Franklin Trust Bldg., Phila-
 delphia, see p. 18
 Strong Steel Foundry Co., Buffalo
 Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

CASTINGS, Steel, Small

Johnson & Co., Isaac G., Spuyten Duyvil, New York
 Jewell Steel & Malleable Co., San Francisco

CEDAR, Port Oxford

Burritt, A. W., Bridgeport, Conn.
 Dutton Lumber Corp., A. C., G. C. Terminal, New York
 Elias & Bro., J., 965 Elk St., Buffalo
 Lewis Lumber Co., E. H., 18 Broadway, New York
 National Timber Co., Mobile, Ala.
 Wyatt Prock Lumber Co., Widener Bldg., Philadelphia

1. The following information was obtained from the records of the Sterling-Cooper Co., New York, regarding the purchase of the property described in the above captioned document.

2. The property was purchased by the Sterling-Cooper Co., New York, on the 1st day of January, 1911, for the sum of \$100.00.

3. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

4. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

5. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

6. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

7. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

8. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

9. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

10. The property was purchased by the Sterling-Cooper Co., New York, for the sum of \$100.00, and the same was sold to the Sterling-Cooper Co., New York, for the sum of \$100.00, on the 1st day of January, 1911.

CEDAR, Spanish

Douglass, Geo., 317 West St., New York
Freiberg Lumber Co., The, Cincinnati

CEDAR, White

Burritt, A. W., Bridgeport, Conn.
Central Timber Export Co., Inc., 115 Broadway, New York
Douglass, Geo., 317 West St., New York
Dutton Co., A. C., G. C. Terminal, New York
Elias & Bro., J., 965 Elk St., Buffalo
Kells Mills & Lumber Co., Java & Provost Sts., Brooklyn, N. Y.
National Timber Co., Mobile, Ala.
Sanderson & Co., S. B., Menominee, Mich.
Stevens-Eaton Co., 1 Madison Av., New York
Wyatt-Prock Lumber Co., Philadelphia

CEILING & PANELING MATERIAL

Ford, Dan E., Merchants Ex. Bldg., San Francisco
Keyes Products Co., The, 120 Broadway, New York
Marine Decking & Supply Co., Philadelphia, See p. 6
Pantasote Co., The, 11 Broadway, New York
Portland Ship Ceiling Co., Portland, Me.
Scovel Iron Store Co., San Francisco
Wright & Lacy, San Francisco

CEMENT, BELT

Bradford Belting Co., Cincinnati
Chicago Belting Co., Chicago
Cling-Surface Co., Buffalo
Grand Rapids Belting Co., Grand Rapids, Mich.
Graton & Knight Mfg Co., Worcester, Mass.
Houghton & Co., E. F., Philadelphia
Jewell Belting Co., Hartford, Conn.
Ladew Co., Inc., E. R., Glen Cove, N. Y.

CEMENT, Iron

Clark Cast Steel Cement Co., Shelton, Conn.
Felton, Sibley & Co., Inc., Philadelphia
Hilo Varnish Corp., Marcy Av., Brooklyn, N. Y.
Smooth-On Mfg Co., 572 Communipaw Av., Jersey City, N. J.

CEMENT, Linoleum

Atlas Supply Co., Manayunk, Philadelphia
Feigel & Bro., M., 185 Wooster St., New York
Ferdinand & Co., L. W., 152 Kneeland St., Boston
Greig, John, 39 Cortland St., New York
Guy & Co., 1824 Wellington St., Philadelphia
Knox & Morse, 96 High St., Boston
Moller Schumann Co., Marcy & Flushing Av., Brooklyn, N. Y.
Nairn Linoleum Co., The, Kearny, N. J.
Nubian Paint & Varnish Co., 1856 LeClair Av., Chicago
Pendleton, Jr. & Co., W. S., 164 Front St., New York
Pitcairn Varnish Co., 213 Lake St., Milwaukee, Wis.
Scott & West Co., 15 E. 40th St., New York
Sherwin-Williams Co., Brawn St., & Lister Av., Newark, N. J.
Truscon Laboratories, The, Detroit, Mich.
Wild Co., Jas., 230 Fifth Av., New York
Williams Manufacturing Co., Camden, N. J.

CEMENT, Pipe Joint

Chard & Howe, 250 Front St., New York
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Dixon Crucible Co., Jos., Monmouth Av., Jersey City, N. J.
Johns-Manville Co., H. W., New York
Smooth-On Mfg Co., 572 Communipaw Av., Jersey City, N. J.
Stone Tar Products Co., The, 116 So. 8th St., Bklyn., N. Y.

CEMENT, Refractory

Betson Plastic Fire Brick Co., Rome, N. Y.
Botfield Specialties Co., Philadelphia
Celite Products Co., 11 Broadway, New York
Clinton Metallic Paint Co., Clinton, N. Y.
Harbison-Walker Refractories Co., Pittsburgh
Johns-Manville Co., H. W., New York
Jointless Fire Brick Co., Chicago
Quigley Furnace Specialties Co., Inc., 26 Cortlandt St., New York

CENTRIFUGAL OIL PURIFIERS (See Oil Purifiers, Centrifugal)**CENTRIFUGAL PUMPS (See Pumps, Subhead)****CHAIN, Coll**

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
Bradlee & Co., Philadelphia
Chain Products Co., The, Cleveland
Columbus-McKinnon Chain Co., Cleveland
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
United States Chain & Forging Co., Union Arcade, Pittsburgh, see p. 15

CHAIN, Crane, Dredge & Rafting

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
Newhall Chain Forge & Iron Co., 90 West St., New York
United States Chain & Forging Co., Union Arcade, Pittsburgh, see p. 15
Woodhouse Chain Works, Trenton, N. J.

CHAIN, Jack, Iron & Brass**Plumbers', Brass & Nickel Plated**

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
American Fdry & Mfg Co., 122 Michigan Av., Chicago
Art Metal Works, Inc., 7 Mulberry St., Newark, N. J.
Bliss Co., A. H., No. Attleboro, Mass.
Buhl Sons Co., Detroit, Mich.
Chain Products Co., The, Cleveland
Corbin Screw Corp., New Britain, Conn.
Duer & Sons, Jno., 36 S. Charles St., Baltimore
Hendryx Co., The Andrew B., New Haven, Conn.
Hibbard, Spencer, Bartlett Co., State St., Chicago
Hobbs, Clinton E., 12 Pearl St., Boston
Manning, Maxwell & Moore, 119 W. 40th St., New York
Mattatuck Mfg Co., Waterbury, Conn.
Morgan Spring Co., Worcester, Mass.
Novelty Mfg. Co., Waterbury, Conn.
Steele & Johnson Mfg. Co., Waterbury, Conn.
Turner & Seymour Co., Torrington, Conn.

CHAIN, Ship Anchor Stud Link, Close Link

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
Baldt Anchor Co., Chester, Pa.
Bradlee & Co., Philadelphia
Columbus-McKinnon Chain Co., Columbus, Ohio
Hayden-Corbett Chain Co., Columbus, Ohio
Lebanon Chain Works, Lebanon, Pa.
National Malleable Castings Co., Cleveland
National Chain Co., College Point, L. I. City, N. Y.
Seattle Chain Co., Seattle, Wash.
Taylor Chain Co., S. G., Marquette Bldg., Chicago
United States Chain & Forging Co., Union Arcade, Pittsburgh, see p. 15
Woodhouse Chain Co., Trenton, N. J.

CHAIN HOISTS (See Hoists, Chain & Block)**CHAIN STOPPERS**

American Engineering Co., Philadelphia

CHAIRS, Barber

Barker, Inc., James, 6th & Cayuga Sts., Philadelphia
Berningham Co., The Eugene, Cincinnati
Chisholm Co., The, 178 Center St., New York
Collins Furniture Co., Toledo, Ohio
Koken Barbers Supply Co., St. Louis, Mo.
Kocks & Sons, Thos. A., 659 Chicago

CHAIRS, Dining & Stateroom

Allen Chair Co., Concord Junction, Mass.
American Seating Co., 14 E. Jackson Blvd., Chicago
Andrews Co., A. H., 174 Wabash Av., Chicago
Barth & Son, L., 32 Cooper Sq., New York
Campbell & Co., W. D., Shelbyville, Ind.
Crocker Chair Co., Sheboygan, Wis.
Heywood Bros., & Wakefield Co., 516 W. 34th St., New York
Peck & Hills Furniture Co., 141 Madison Av., New York
Shaw Furniture Co., 50 Second Av., Cambridge, Mass.

9. [illegible]

CHAPLETS

Erdle Perforating Co., Rochester, N. Y.
 Fanner Manufacturing Co., The, Cleveland
 Lindsay & Co., W. W., Harrison Bldg., Philadelphia
 Paxon Co., J. W., 1022 Del Av., Philadelphia
 U. S. Chaplet & Supply Co., 140 Cedar St., New York

CHARCOAL

Atlantic Turpentine Co., 90 West St., New York
 Long Island Charcoal Co., 212 24th St., Brooklyn, N. Y.
 National Charcoal Co., 518 W. 40th St., New York
 Standard Charcoal Co., Bradford, Pa.

CHASERS

Bay State Tap & Die Co., Mansfield, Mass.
 Jones & Lamson Machine Co., Springfield, Vt.
 Montgomery & Co., 105 Fulton St., New York
 Murchey Machine & Tool Co., Detroit, Mich.
 Niles-Bement-Pond Co., 111 Broadway, New York

CHINAWARE

Barth & Son., L., 32 Cooper Square, New York
 Bedford China Co., Bedford, Ohio
 Cartwright Bros. Co., East Liverpool, Ohio
 Greenwood Pottery Co., Trenton, N. J.
 Guernsey Earthenware Co., Cambridge, Ohio
 Knowles, Taylor & Knowles, 10 W. 23d St., New York
 Maddock & Sons, John, Trenton, N. J.
 National China Co., Solineville, Ohio
 Owen China Co., Minerva, Ohio
 Radus & Sons, N., 78 Bowery, New York
 Shaw & Son, J. M., 25 Duane St., New York
 Shenango Pottery Co., New Castle, Pa.

CHIPPING HAMMERS (See Hammers, Chipping)**CHISELS, All Types**

Braunsdorf-Mueller Co., 205 Madison Av., Elizabeth, N. J.
 Buck Bros. Co., Millbury, Mass.
 Carver Tool Works, Spring Valley, N. Y.
 Chapin-Stevens Co., Pine Meadow, Conn.
 Cincinnati Tool Co., Cincinnati
 Cleveland Steel Tool Co., Cleveland
 Crescent Tool Mfg. Co., St. Louis, Mo.
 Cushman Tool Mfg. Co., Champaign, Ill.
 Davis-Hunt-Colister Hardware Co., Cleveland
 Diener Mfg Co., Chicago
 Drew & Co., Kingstown, Mass.
 Hammond & Sons, Ogontz, Pa.
 Harrold Tool & Forge Co., Columbiana, Ohio
 Harvey & Harvey, Augusta, Me.
 Hubbard & Co., Pittsburgh
 Irvington Mfg Co., The, Irvington, N. J.
 Keller Pneumatic Tool Co., 20 E. Jackson Blvd., Chicago
 Kortick Falls Mfg Co., San Francisco
 Leetonia Tool Co., Leetonia, Ohio
 New England Tool Co., Boston
 Shunk Manufacturing Co., Bucyrus, Ohio
 Verona Tool Works, Pittsburgh
 Warner Hammer Co., Cromwell, Conn.
 Wiebusch & Hilger, 106 Lafayette St., New York

CHISELS for Pneumatic Tools

Bernz, Otto, 27 Ashland St., Newark, N. J.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Cleveland Steel Tool Co., Cleveland
 Hammond & Son, C., Ogontz, Pa.
 Hubbard & Co., Pittsburgh
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Keller Pneumatic Tool Co., 20 E. Jackson Blvd, Chicago
 Lovejoy Tool Works, Chicago
 Oswego Machine Tool & Die Works, Oswego, N. Y.
 Ridgeway Steel Products Corp, 699 W. 133d St., New York
 White & Sons, L. & I. J., Buffalo

CHOCKS & CRADLES, Boat

American Balsa Co., 50 E. 42d St., New York
 American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Carpenter & Co., Geo. B., Chicago
 Central Foundry Co., 90 West St., New York

Doud-Mac Farlane Machy Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Ford & Geirrine, San Francisco
 Fox Bros. & Co., 128 Lafayette St., New York
 Independent Foundry Co., Portland, Ore.
 Main Iron Works, San Francisco
 Marine Hardware Equipment Co., So. Portland, Me.
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Phila-
 delphia, see p. 18
 Thatcher Propeller & Foundry Co., Albany, N. Y.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

CHRONOMETERS

Bliss & Co., John, 128 Front St., New York
 Butler, Geo. E., 356 California St., San Francisco
 Cerf, Lester, 47 Maiden Lane, New York
 Kelvin & Wilfreid O. White Co., 112 State St., Boston
 Marine Compass Co., 253 Broadway, New York
 Nautical Instrument Mfg Co., Inc., 47 West St., New York
 Negus, T. S. & J. D., 140 Water St., New York
 Weule Co., Louis, 6 California St., San Francisco

CHRONOGRAPHS, Electric

Stromberg Electric Co., 8 W. 40th St., New York

CHUCKS, Automatic, Drill & Lathe

Chicago Pneumatic Tool Co., 6 E. 43d St., New York
 Cushman Chuck Co., Hartford, Conn.
 Frasse & Co., Inc., Peter A., 419 Canal St., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Horton & Sons Co., E., Windsor Locks, Conn.
 Marshall-Wells Co., Duluth, Minn.
 Modern Tool Co., Erie, Pa.
 Monarch Engineering Co., Dayton, Ohio
 North Bros. Mfg Co., Philadelphia
 Pratt Chuck Co., Frankfort, N. Y.
 Simplex Tool Co., Woonsocket, R.I.
 Skinner Chuck Co., New Britain, Conn.
 Standard Tool Co., Cleveland
 Union Mfg Co., New Britain, Conn.
 Westcott Chuck Co., Oneida, N. Y.

CHUCKS, Ring

Gardner Machine Co., Beloit, Wis.

CIRCUIT BREAKERS

Adamant Porcelain Co., East Liverpool, Ohio
 Central Electric Co., Chicago
 Condit Electric Mfg Co., So. Boston, Mass.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see
 p. 35
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Industrial Controller Co., Milwaukee, Wis.
 Louis & Rath, Philadelphia
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wetmore-Savage Co., Boston

CIRCULATING PUMPS (See Pumps Subhead)**CIRCULATORS (See Boiler Circulators)****CLAMPS, Air Hose**

Ideal Clamp Mfg Co., 202 Bradford St., Brooklyn, N. Y.
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 Quaker City Rubber Co., 629 Market St., Philadelphia
 Sherman Mfg Co., H. B., Battle Creek, Mich.
 Williams & Wells Co., 252 Fulton St., New York

CLAMPS, "C"

Billings & Spencer, Hartford, Conn.
 Clipper Tool Co., Buffalo
 Eberhard Manufacturing Co., Cleveland
 Lovejoy Tool Co., Chicago
 Malleable Iron Fittings Co., Branford, Conn.
 Mark Manufacturing Co., Evanston, Ill.
 Stearns & Co., E. C., Syracuse, N. Y.
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

CLAMPS, Extension Screw, Shipbuilders

New London Vise Works, New London, Conn.
 Phoenix Hardware Co., Buffalo
 Sheldon & Co., Muskegon, Mich.

STERLING-COOPER CO., NEW YORK

Stearns & Co., E. C., Syracuse, N. Y.
Taylor Mfg Co., J. H., Poughkeepsie, N. Y.

CLAMPS, Hose (See Hose Fittings)

CLAMPS, Machinists

Armstrong Bros., Tool Co., Chicago
Bartlett Mfg Co., Detroit, Mich.
Niles-Bement-Pond Co., 111 Broadway, New York
Reed Manufacturing Co., Erie, Pa.
Starrett Co., L. S., Athol, Mass.
Stearns & Co., E. C., Syracuse, N. Y.
Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

CLAMPS, Patternmakers

Batavia Clamp Co., Batavia, N. Y.
Handy Mfg Co., 29 E. Madison St., Chicago
Mossberg Co., Frank, Attleboro, Mass.
Stearns & Co., E. C., Syracuse, N. Y.

CLASSIFICATION SOCIETIES (See Societies, Technical)

CLAY, Fire (See Cement Refractory Brick, Fire)

CLEANING MATERIALS

Davidson, W. Cox., L. C. Smith Bldg., Seattle, Wash.
Ensign Refining Co., Cleveland
Ford Co., J. B., Wyandotte, Mich.
Modoc Co., Fernwood, Philadelphia
Oakley Chemical Co., 22 Thames St., New York
(See also Ship Chandlers, Port Data Section)

CLEATS (See Also Deck Fittings)

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100

Carpenter & Co., Geo. B., Chicago
Central Foundry Co., 90 West St., New York
Doud-MacFarlane Machy Co., The, Naugatuck, Conn.
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Fox Bros. & Co., 126 Lafayette St., New York
Independent Foundry Co., Portland, Ore.
Main Iron Works, San Francisco
Marine Hardware Equipment Co., So. Portland, Me.
Penn Seaboard Steel Corp, Franklin Trust Bldg., Philadelphia, see p. 18

Thatcher Propeller & Fdry Corp, Albany, N. Y.
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
Topping Brothers, 122 Chambers St., New York
Ulster Foundry Corp, Kingston, N. Y.
Wilcox, Crittenden & Co., Middletown, Conn.

CLINCH RINGS

Art Metal Works, Inc., Newark, N. J.
B. & K. Mfg Co., New Britain, Conn.
Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Butts & Ordway Co., 32 Purchase St., Boston
Jewell Steel & Malleable Co., San Francisco
Jolley & Co., J. H., 42 N. 5th St., Philadelphia
Laughlin Co., The Thos., Portland, Me.
Liberty Steel Products Co., Inc., 233 Broadway, New York
Malleable Iron Fittings Co., Branford, Conn.
Marine Hdw. Equip. Co., So. Portland, Me.
National Brass Co., Grand Rapids, Mich.
N. Y. Iron & Steel Prod. Co., 143 Chambers St., New York
Oliver Iron & Steel Co., Pittsburgh
Stowell Co., So. Milwaukee, Wis.
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
Wilcox, Crittenden & Co., Middletown, Conn.

CLINOMETERS

Cory & Son, Inc., Chas., King & Varick Sts., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Freas Glass Works, Inc., F. L., Conshohocken, Pa.
Keuffel & Esser Co., 300 Adams St., Hoboken, N. J.
Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
Precision Thermometer & Instrument Co., Philadelphia
Queen-Gray Co., 618 Chestnut St., Philadelphia
Rieker Instrument Co., 1919 Fairmount Av., Philadelphia
Ritchie & Sons, E. S., Brookline, Mass., see p. 22
Taylor Instrument Co., Rochester, N. Y.

CLIPPERS, Bolt, Compound-Lever

Brombacker & Co., A. F., 31 Fulton St., New York
Cameron & Byington 143 Chambers St., New York

Carolus Manufacturing Co., Sterling, Ill.
Chandler & Farquhar Co., 32 Federal St., Boston
Crerar, Adams & Co., Erie St., Chicago
Fairbanks Co., 416 Broome St., New York
Flint & Chester, Inc., 2 South St., New York
Frank, Jr., Henry, 374 Hudson St., New York
Galbraith & Sons, C. C., 117 West St., New York
Hammacher, Schlemmer & Co., 133 Fourth Av., New York
Helwig Manufacturing Co., 422 E. 7th St., St. Paul, Minn.
Irvington Mfg Co., The, 114 Coit St., Irvington, N. J.
Johnson Rule Mfg Co., E. P., 565 Washington Blvd., Chicago

Kemp Machinery Co., 223 N. Calvert St., Baltimore
Kurzon, Chas., 159 E. Houston St., New York
Machinists' Supply Co., Pittsburgh
Man Sherwood Supply Co., 1616 W. 3d St., Cleveland
Manning, Maxwell & Moore, 119 W. 40th St., New York
Metal Stamping Co., 13 & 14 Blvd., Long Island City, N. Y.
New England Tool Co., Boston
Porter, Henry K., Everett, Wash.
Roberts Manufacturing Co., Somerville, Mass.
Shapleigh Hardware Co., St. Louis, Mo.
Strelinger Co., Chas. A., 43-51 Larned St., Detroit, Mich.
Walls Tool & Supply Co., T. P., 25 Leonard St., New York
Weco Manufacturing Co., 101 Duane St., New York
CLIPS, Wire Rope (See Wire Rope Fittings)

CLOCKS, Boat, Deck, Dynamo & Engine Room

Chelsea Clock Co., 10 State St., Boston
Foxboro Co., Inc., Foxboro, Mass.
Howard Clock Co., E., 373 Washington St., Boston
Kelvin & Wilfred O., White, 112 State St., Boston
Mayer & Bros., Jos., P. O. Box 1914, Seattle, Wash.
Negus, T. S. & J. D., 140 Water St., New York
New Haven Clock Co., New Haven, Conn.
Seth Thomas Clock Co., 19 W. 44th St., New York, see pp. 20 & 21

Weule Co., Louis, 6 California St., San Francisco
York Manufacturing Co., York, Pa., see p. 98

CLOCKS, Marine, Striking & Non-Striking

Cerf, Lester, 47 Maiden Lane, New York
Chelsea Clock Co., 10 State St., Boston
Enhaus Sons, W. H., 31 John St., New York
Hand & Sons Co., John E., Haddonfield, N. J.
Seth Thomas Clock Co., 19 W. 44th St., New York, see pp. 20 & 21

Weule Co., Louis, San Francisco

CLOTH, Abrasive (See Abrasive Cloth & Paper)

CLOTH, Metal (See Wire Cloth)

CLOTHING, Waterproof

Goodall Rubber Co., Inc., Philadelphia, see p. 54
United States Rubber Co., 1790 Broadway, New York, see p. 57

COAL, Bunker

(See Port Data Section)

COAL HANDLING MACHINERY

Alliance Machine Co., Alliance, Ohio
American Hoist & Derrick Co., St. Paul, Minn.
Brown Hoisting Machinery Co., Cleveland
Collins-Ferguson Co., Seattle, Wash.
De Mayo Engineering Corp., Pier 62, N. R., New York
Exeter Machine Works, Inc., West Pittston, Pa.
Gifford-Wood Co., Hudson, N. Y.
Hayward Co., The, 50 Church St., New York
Hunt & Co., Inc., C. W., 140 Nassau St., New York
Lakeside Bridge & Steel Co., No. Milwaukee, Wis.
Lidgerwood Mfg Co., 96 Liberty St., New York
Maine Electric Co., The, Portland, Me.
Manning, Maxwell & Moore, Inc., 119 W. 40th St., New York

Mead-Morrison Mfg Co., 149 Broadway, New York

Mundy Hoisting Engine Co., J. S., Newark, N. J.
National Hoisting Engine Co., Harrison, N. J.
Pawling & Harnishfeger, Los Angeles
Smith-Booth-Usher Co., San Francisco

COCKS, Ammonia (See Valves & Fittings, Ammonia)

COCKS, Brass

American Lubricator Co., Detroit, Mich.
Ashton Valve Co., Cincinnati
Beaton & Cadwell Mfg Co., 234 Water St., New York

STERLING-COOPER CO., NEW YORK

Buckeye Iron & Brass Works, Dayton, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Detroit Brass Works, 331 Holden Av., Detroit, Mich.
 Detroit Lubricator Co., Trumbull & Lincoln Aves., Detroit, Mich.

Detroit Valve & Fittings Co., Wyandotte, Mich.
 Empire Brass & Iron Co., 150 Nassau St., New York
 Hays Mfg Co., Erie, Pa.
 Homestead Valve Mfg Co., Homestead, Pa.
 Humphreys Mfg Co., Mansfield, Ohio
 Kelly & Jones Co., Greenburg, Pa.
 Lippold Valve Company, Erie, Pa.
 Lunkenheimer Co., Cincinnati
 McRae & Roberts Co., Detroit, Mich.
 Michigan Lubricator Co., Detroit, Mich.
 Milwaukee Flush Valve Mfg Co., Milwaukee, Wis.
 Mueller Mfg Co., H., 512 W. Cerro Gordo St., Decatur, Ill.
 Peck Bros. & Co., Chestnut St., New Haven, Conn.
 Penn Engineering Co., 312 Cherry St., Philadelphia
 Powell Co., The Wm., Cincinnati
 Union Brass & Metal Mfg Co., 234 Water St., New York

COCKS, Indicator (See Indicator Cocks)

COCKS, Iron

Cadman Mfg Co., Smallwood Av., Pittsburgh
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Homestead Valve Mfg Co., Pittsburgh, Pa.
 Kelly & Jones Co., Greensburg, Pa.
 Lunkenheimer Co., Cincinnati
 Merrill Co., The, San Francisco
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Pittsburgh Valve Fdry & Const Co., Pittsburgh
 Pratt & Cady Co., Inc., Hartford, Conn.

COCKS, Plumbing, Brass (See Also Plumbing, Marine)

Barrett Mfg Co., James, Boston
 Burlington Brass Works, Burlington, Wis.
 Central Brass Mfg Co., Cleveland
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Curtiss Co., J. H., 2 South St., New York
 Dearborn Brass Co., Cedar Rapids, Iowa
 Detroit Sanitary Supply Co., Detroit, Mich.
 Dick Bros., Inc., Reading, Pa.
 Federal Huber Co., Chicago
 Humphreys Mfg Co., Mansfield, Ohio
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Lehnert & Co., 334 E. 23d St., New York
 McCambridge Co., Philadelphia
 Mott Iron Works, J. L., Trenton, N. J.
 Sands & Son Co., A. B., 20 Vesey St., New York
 Sanitas Manufacturing Co., Boston
 United Brass Mfg Co., Cleveland
 Wolverine Brass Works, Grand Rapids, Mich.

CODLINE

Ashaway Line & Twine Mfg Co., Ashaway, R. I.
 Filter & Co., Edwin H., Philadelphia
 Kelly Co., H. C., 35 Worth St., New York
 Ludlow Mfg Associates, Boston
 MacWhite Co., Kenosha, Wis.
 Plymouth Cordage Co., North Plymouth, Mass.
 Samson Cordage Co., Boston
 Wall Rope Works, Inc., 48 South St., New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

COFFEE BOILERS (See Galley Equipment)

COILS & BENDS, Refrigerating Pipe

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95
 Clothel Refrigerating Co., 51 Broadway, New York, see p. 96
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Frick Company, Waynesboro, Pa., see p. 97
 Gay & Son Co., C. M., Los Angeles
 Harrisburg Pipe & Pipe Bending Co., Harrisburg, Pa.
 Johns-Manville Co., H. W., 296 Madison Av., New York
 Montague Iron Wks Corp, 1011 Chestnut St., Philadelphia
 Philadelphia Pipe Bending Co., Philadelphia
 Pittsburgh Pipe Coil & Bending Co., Pittsburgh
 Reading Iron Works, Reading, Pa.

Remington Mach Co., 411 S. Front St., Wilmington, Del.
 Rempe Co., Chicago
 Roessing Manufacturing Co., Pittsburgh
 Ruemmeli-Dawley Mfg Co., St. Louis, Mo.
 Standard Scale & Supply Co., 1631 Liberty Av., Pittsburgh
 Triumph Ice Machine Co., Oakley, Cincinnati
 U. S. Shape & Pipe Bending Co., San Francisco
 Vogt Machine Co., Henry, Louisville, Ky.
 York Manufacturing Co., York, Pa., see p. 98

COILS, Heating, Electric

American Electric Heater Co., Detroit, Mich.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Edison Electric Appliance Co., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hot Point Electric Heating Co., 140 Sixth Av., New York
 Hughes Electric Heating Co., Chicago
 Promethen Electric Co., 511 W. 42d St., New York
 Red Top Electric Co., Inc., 8 W. 19th St., New York
 Ward Leonard Electric Co., Mt. Vernon, N. Y.
 Western Electric Co., 151 Fifth Av., New York

COKE, Furnace, Gas & Foundry

American Steel Co., Park Bldg., Pittsburgh
 Clare Coke Co., Greensburg, Pa.
 Davis Coal & Coke, Baltimore
 Debevoise-Anderson Co., 56 Liberty St., New York
 Genuine Connellsville Coke Co., Brownsville, Pa.
 Keystone Coal & Coke Co., Greensburg, Pa.
 Latrobe Connorsville Coal & Coke Co., Philadelphia
 Lehigh Coke Co., So. Bethlehem, Pa.
 Matlack Coal & Iron Corp, 52 Vanderbilt Av., New York
 Parkinson Coal & Coke Co., 1091 Grand Av., Bklyn, N. Y.
 Puritan Coke Co., Uniontown, Pa.
 Rogers, Brown & Co., Carew Bldg., Cincinnati
 Samuel, Frank, 4544 No. 19th St., Philadelphia
 Tuttles Sons, S., 40 Broadway, Brooklyn, N. Y.
 Vinton Colliery Co., 50 E. 42d St., New York

COLD STORAGE COMPARTMENT INSULATING MATERIALS

American Balsa Co., 50 E. 42d St., New York
 Armstrong Cork & Insulation Co., Pittsburgh
 Banner Rock Products Co., Alexandria, Ind.
 Columbia Mineral Wool Co., Chicago
 Gay & Son, C. M., Los Angeles
 General Insulation & Mfg Co., St. Louis, Mo.
 Mundet & Son, L., New York
 National Refrigeration Co., St. Louis, Mo.
 Union Fibre Co., Winona, Minn.
 Union Insulating Co., Chicago
 United Cork Co., New York

COLORS, Paint, Dry & in Oil (See Paint Subhead)

COMMUTATOR COMPOUND

Goldmark Co., Jas., 83 Warren St., New York
 Pettingill-Andrews Co., Boston
 Western Electric Co., 151 Fifth Av., New York

COMPASS LIGHTS, Electric

Cory & Son, Chas., 183 Varick St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Marine Electric Co., San Francisco
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43

COMPASS (GYRO) TRANSMISSION REPEATERS (See Compasses, Gyro)

COMPASSES, Compensating & Boat

Arma Engineering Co., Inc., 228 40th St., Brooklyn, N. Y.
 Bliss & Co., John, 128 Front St., New York
 Brandis & Sons, Inc., 754 Lexington Av., Brooklyn, N. Y.
 Chadburn Ship Telegraph Co. of America, Troy, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Hand & Son Co., John, Haddonfield, N. J.
 Kelvin & Wilfrid O. White Co., 112 State St., Boston
 Lietz Co., A., 61 Post St., San Francisco
 McNab Co., The, Bridgeport, Conn.
 Makepeace, Inc., B. L., 387 Washington St., Boston
 Nautical Instruments Mfg Co., 47 West St., New York
 Negus, T. S. & J. D., 140 Water St., New York

OMITTING NAME ASKED FOR

Reid & Pancoast, Inc., 315 Vine St., Philadelphia
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Schaar & Company, 1025 South State St., Chicago
 Sherman, Eugene M., Bellevue, Wash.
 Taylor Instrument Co., Rochester, N. Y.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Weule Co., Louis, 6 California St., San Francisco

COMPASSES (Gyro)

Hamilton & Hansell, Inc., 13 Park Row, New York
 Sperry Gyroscope Co., Brooklyn, N. Y.

COMPOSITIONS, Bituminous (See Paint, Subhead)

COMPOSITION DECKING & FLOORING

Asbestolith Mfg Co., 1 Madison Av., New York
 Beaver Tile & Specialty Co., 442 W. 42d St., New York
 Kennedy, Inc., David E., 62 W. 14th St., New York
 Linotol Flooring Co., 15 Whitehall St., New York, see p. 31

Marine Decking & Supply Co., Philadelphia, See p. 6
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Philadelphia Mineral Flooring Co., Philadelphia

COMPOUNDS (See the Following:

Boiler Compounds
 Case Hardening Compound
 Commutator Compound
 Cutting Compound, Liquid & Paste
 Grinding Compound
 Slushing Compound
 Waterproofing Compound
 Welding Compound)

COMPRESSORS, Air (See Air Compressors)

COMPRESSORS, Ammonia, CO₂, Ethyl Chloride & SO₂ (See Refrigerating Machinery)

COMPRESSORS, Deck

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Cramp Sons Ship & Eng. Bldg. Co., The Wm., Philadelphia
 Todd Shipyards Corp, 15 Whitehall St., Philadelphia

CONDENSER TUBE FERRULES

American Brass Co., Waterbury, Conn.
 Ducommun Hardware Co., San Francisco
 Ford & Geirrine, San Francisco
 Hillman, M. H., 59 Pearl St., New York
 Huston, E. B., Portland, Ore.
 Jenkins Co., V. S., Seattle, Wash.
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23

CONDENSER TUBES

American Brass Co., Waterbury, Conn.
 Bridgeport Brass Co., Bridgeport, Conn.
 Chase Rolling Mill Co., Waterbury, Conn.
 Detroit Seamless Steel Co., Detroit, Mich.
 Ducommun Hardware Co., San Francisco
 Ford & Geirrine, San Francisco
 Hillman Co., H. M., 59 Pearl St., New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Huston, E. B., Portland, Ore.
 Jenkins Co., V. S., Seattle, Wash.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93

Nat'l Brass & Copper Tube Co., 41 Park Row, New York
 Shipbuilding Products Mfg Co., 179 West St., New York
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23

CONDENSERS, Main & Auxiliary, High & Low Vacuum

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Curtis Bay Copper & Iron Works, Baltimore
 Kerr Machinery Corp, Detroit, Mich.
 Oregon Brass Works, Portland, Ore.
 Row & Davis, Engineers, Inc., 90 West St., New York, see p. 45

Smith & Watson Iron Works, The, Portland, Ore.
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Worthington Pump & Machinery Corp, 115 Broadway, New York, see pp. 74-81

CONDUITS, Flexible, Metallic & Non-Metallic

American Conduit Mfg. Co., The, Pittsburgh
 Central Electric Co., Chicago
 Enamel Metals Co., Pittsburgh
 Fullerton Electric Co., 15 W. 20th St., New York
 National Metal Molding Co., Pittsburgh
 Pittsburgh Electric & Machine Co., Pittsburgh
 Safety Amorite Conduit Co., W. Pittsburgh
 Saylor Electric & Mfg Co. (metal only), Wheeling, W. Va.
 Triangle Conduit Co., Inc., 52 Columbia St., Bklyn., N. Y.
 Tubular Woven Fabric Co., Pawtucket, R. I.
 Western Electric Co., 151 Fifth Av., New York

CONDUIT BOXES (See Boxes, Conduit)

CONDUIT PIPE (See Tubing)

CONDULETS

Appleton Electric Co., Chicago
 Austin & Co., The M. B., Chicago
 Central Electric Co., Chicago
 Crouse-Hinds Co., Syracuse
 Hart & Hegeman Mfg Co., Hartford, Conn.
 Livingston & Co., Inc., J., G. C. T., New York
 Marine Electric Co., San Francisco
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43
 Western Electric Co., 151 Fifth Av., New York

CONTROL SYSTEMS, Electric

Allen-Bradley Co., Milwaukee, Wis.
 Central Electric Co., Chicago
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hohman Nelson Co., Eau Claire, Wis.
 Industrial Controller Co., Milwaukee, Wis.
 Monitor Controller Co., Baltimore
 National Electric Controller Co., Chicago

CONTROL SYSTEMS, Electric Propulsion

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Westinghouse Electric & Mfg Co., Pittsburgh

CONTROL SYSTEMS, Speed & Truck, Light, Automatic

Allen-Bradley Co., Milwaukee, Wis.
 Butte Engineering & Electric Co., San Francisco
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Diehl Manufacturing Co., Elizabeth, N. J.
 Industrial Controller Co., Milwaukee,
 Monitor Controller Co., Baltimore
 Ostrander & Co., W. R., 371 Broadway, New York

CONVERTERS, Synchronous

General Electric Co., Schenectady, N. Y., see pp. 36-41

CONVEYORS, Portable

Alvey Mfg Co., St. Louis, Mo.
 Brown Portable Elevator Co., Chicago
 Karl Kiefer Machine Co., Cincinnati
 McKinney Harrington Co., No. Chicago, Ill.
 Portable Machinery Co., Inc., Canal St., Passaic, N. J.
 Robins Conveying Belt Co., 13 Park Row, New York
 Warner Co., A. C., Philadelphia

COOKING UTENSILS (See Galley Equipment)

COOLERS, Oil (See Oil Coolers)

COPPER CASTINGS (See Castings, Copper)

COPPER, Ingot

American Smelt. & Refn. Co., 120 Broadway, New York
 Baltimore Copper Smelt. & Rolling Co., 128 Fourth Av., New York

STERLING-COOPER CO., NEW YORK

British American Metal Co., 52 Vanderbilt Av., New York
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Clendenin Bros., The, 220 Broadway, New York
 Columbia Smelt. & Refin. Co., 365 West St., New York
 Eagle Smelting & Refining Co., 233 Broadway, New York
 Great Western Smelt. & Refining Co., 41st & Wallace Sts., Chicago
 Henning & Sons, V., 330 Belmont Av., Brooklyn, N. Y.
 Hendricks Brothers, Inc., 49 Cliff St., New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Michigan Smelting & Refining Co., Detroit, Mich.
 Nassau Smelt. & Refining Co., 603 W. 29th St., New York
 Niles & Co., Inc., F. H., 233 Broadway, New York
 No. Atlantic Metal Corp., 29 Broadway, New York
 Pope Metals Co., 90 West St., New York
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Seligman, Arthur, 165 Broadway, New York
 White & Bros., Inc., North American Bldg., Philadelphia

COPPER, Manganese

North Atlantic Metal Corp, 29 Broadway, New York

COPPER, Phosphor

American Smelting & Refining Co., 120 Bway., New York
 Columbia Smelt. & Refin. Co., 365 West St., New York
 Eagle Smelting & Refining Co., 233 Broadway, New York
 Great Western Smelt. & Refining Co., 41st & Wallace Sts., Chicago
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Michigan Smelting & Refining Co., Detroit, Mich.
 Nassau Smelt. & Refin. Co., 603 W. 29th St., New York
 No. Atlantic Metal Corp, 29 Broadway, New York
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Schoen-Jackson Co., Finance Bldg., Philadelphia
 United American Metals Corp, 196 Diamond St., Brooklyn, N. Y.

COPPER, Reclaimed, Scrap, Ingot

American Smelting & Refining Co., 120 Bway, New York
 Eagle Smelting & Refining Works, 233 Bway., New York
 Great Western Smelting & Refining Co., Chicago
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Nassau Smelt. & Refin. Works, 603 W. 29th St., New York
 Sandoval Zinc Co., 410 N. Peoria St., Chicago

COPPER, Rod & Bar

American Brass Co., The, Waterbury, Conn.
 Chase Rolling Mill Co., Waterbury, Conn.
 Columbia Smelt. & Refin. Co., 365 West St., New York
 Detroit Copper & Brass Rolling Mill Co., Detroit, Mich.
 Ducommun Hardware Co., San Francisco
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Metal Products Co., Inc., Chicago
 Oregon Brass Works, Portland, Ore.
 Rome Brass & Copper Co., Rome, N. Y.
 Standard Underground Cable Co., Pittsburgh
 United American Metals Corp, Brooklyn, N. Y.

COPPER, Sheet & Strip

American Brass Co., The, Waterbury, Conn.
 Baltimore Copper Smelting & Rolling Co., Baltimore
 Brown-Wales Co., Boston
 Chase Rolling Mill Co., Waterbury, Conn.
 Clendenin Bros., The, 220 Broadway, New York
 Columbia Smelt. & Refin. Wks, 365 West St., New York
 Ducommun Hardware Co., San Francisco
 Gummey, McFarland & Co., Philadelphia
 Hendricks Bros., Inc., 49 Cliff St., New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Hussey, C. C., Pittsburgh
 Merchant & Evans 2013 Washington St., Philadelphia
 Metal Products Co., Inc., Chicago
 New Haven Copper Co., Seymour, Conn.
 Oregon Brass Works, Portland, Ore.
 Riverside Metal Co., The, Riverside, N. J.
 Semple, W. & A. T., Louisville, Ky.
 Stamford Rolling Mills Co., Springdale, Conn.

COPPER, Silicon

No. Atlantic Metal Corp, 29 Broadway, New York

COPPER, Strip, Spring

American Brass Co., Waterbury, Conn.
 Amalgamated Products Co., Co., 165 Broadway, New York
 Baltimore Tube Co., 522 Fifth Av., New York
 Bridgeport Brass Co., Bridgeport, Conn.
 British-American Metal Co., 52 Vanderbilt Av., New York
 Connecticut Brass Corp, West Cheshire, Conn.
 Eagle Smelt. & Refining Works, 233 Bway., New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Merchant & Evans Co., 242 Water St., New York
 Midwest Brass & Copper Co., 480 Broome St., New York
 National Brass & Cop. Tube Co., 41 Park Row, New York
 Randolph-Clowes Co., 253 Broadway, New York
 Sandoval Zinc Co., Chicago
 Stamford Rolling Mills Co., Springdale, Conn.
 Standard Underground Cable Co., Pittsburgh

COPPER PAINT (See Paint, Subhead)**COPPER SULPHATE**

Alexander & Co., G. S., 61 Broadway, New York
 Baker Chemical Co., J. T., Philipsburg, N. J.
 Cooper & Cooper, 309 Broadway, New York
 Denver Fire Clay Co., The, Denver, Col.
 Eimer & Amend, 211 Third Av., New York
 Grasselli Chemical Co., 347 Madison Av., New York
 Hachmeister-Lind Chemical Co., Pittsburgh
 Huron Chemical Co., 51 Bergen St., Brooklyn, N. Y.
 Kirk White Co., H., Oconomowoc, Wis.
 Kunhardt & Co., 17 Battery Place, New York
 Lamberg Chemical Co., R'way Exch. Bldg., St. Louis, Mo.
 Toch Bros., 320 Fifth Av., New York

COPPER TUBING

American Brass Co., The, Waterbury, Conn.
 Chase Rolling Mill Co., Waterbury, Conn.
 Clendenin Bros., The, 220 Broadway, New York
 Ducommun Hardware Co., San Francisco
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Merchant & Evans Co., 2013 Washington St., Philadelphia
 Oregon Brass Works, Portland, Ore.
 Semple, W. & A. T., Louisville, Ky.
 Standard Underground Cable Co., Pittsburgh
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23

COPPER WIRE (See Wire, Copper)**COPPERS, Soldering, Electric (Heavy & Medium)**

American Electric Heater Co., Detroit, Mich.
 Bissell Co., F., Toledo, Ohio
 Clemens Electric Corp, 725 Main St., Buffalo
 Dover Mfg Co., Dover, Ohio
 Edison Electric Appliance Co., Chicago
 Flint & Chester, 2 South St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Latham & Co., E. B., 550 Pearl St., New York
 Lincoln Electric Co., Chicago
 Manhattan Electric Supply Co., 17 Park Row, New York
 Modern Tool & Mach Wks, Inc., Newark, N. J.
 Russell Electric Co., Chicago
 Simplex Electric Heating Co., Boston
 Strelinger & Co., Chas. A., Detroit, Mich.
 Vulcan Electric Heating Co., 107 W. 13th St., New York
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York

COPPERS, Soldering, Wedge & Point

Bernz, Otto, 27 Ashland St., Newark, N. J. (hatchet pattern)
 Brombacker & Co., A. F., 29 Fulton St., New York
 Bullock Mfg Ass'n, Springfield, Mass.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Clendenin Bros., 220 Broadway, New York
 Electric Materials Co., North East, Pa.
 Eureka Co., North East, Pa.
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 237 Lafayette St., New York
 French Co., Inc., H. P., 320 Broadway, New York
 Garrison Bros., Machine Wks, 109 W. 13th St., New York

STERLING-COOPER CO., NEW YORK

Hammacher, Schlemmer & Co., 4th Av., & 13th St., New York

Harris & Co., Samuel, 114 No. Clinton St., Chicago
 Hussey & Co., 2850 Second Av., Pittsburgh
 Kemp Machinery Co., 223 N. Calvert St., Baltimore
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Standard Plumbing Supply Co., 159th St., New York
 Standard Sanitary Mfg Co., Pittsburgh
 Taunton-New Bedford Cop. Co., New Bedford, Mass.
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York

CORD, Electrical, Bell, Silk Covered, Multiple Conductor

American Electrical Works, Phillipsdale, R. I.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gottschalk Mfg Co., Jno. W., Philadelphia
 Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42
 National Metal Molding Co., Pittsburgh
 Okonite Co., The, Canal St., Passaic, N. J.
 Roebling's Sons Co., J. A., Trenton, N. J.
 United States Rubber Co., 1790 Broadway, New York, see p. 57
 Western Electric Co., 151 Fifth Av., New York

CORD, Incandescent Lamp, Cotton Covered & Reinforced Cotton Covered, Silk Covered & Reinforced Silk Covered

Alpha Electric Co., 151 W. 30th St., New York
 American Electrical Works, Phillipsdale, R. I.
 American Steel & Wire Co., Chicago
 Boston Insulated Wire & Cable, Boston
 Detroit Insulated Wire Co., Detroit, Mich.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42
 Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.
 Lillie Corp., R. W., 30 Church St., New York
 National Metal Molding Co., Pittsburgh
 Okonite Co., The, Canal St., Passaic, N. J.
 Roebling's Sons, J. A., Trenton, N. J.
 Safety Insulated Wire & Cable Co., 141 Liberty St., New York
 Standard Underground Cable Co., Pittsburgh
 Western Electric Co., 151 Fifth Av., New York

CORD, Lamp (See Also Cord, Multiple Conductor) Parallel Portable

General Electric Co., Schenectady, N. Y., see pp. 36-41
 Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42
 Western Electric Co., 151 Fifth Av., New York

CORDAGE, Hemp, Manila & Sisal

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Whitlock Cordage Co., 46 South St., New York, see p. 27
 (See also Codline, Cotton Line, Lines, Rope & Cordage)

CORK, Ground & Sheet

Armstrong Cork & Insulation Co., Pittsburgh
 Gay & Son, C. M., Los Angeles
 International Cork Co., 99 Sutton St., Brooklyn, N. Y.
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Kennedy, David E., 62 W. 14th St., New York
 Livezey Co., John R., Philadelphia
 Union Insulating Co., Chicago
 United Cork Cos. of New York, Lyndhurst, N. J.

COTTON LINE & ROVING

Grady Co., M. J., 60 Thomas St., New York
 Hoffman-Corr Mfg Co., 318 Lafayette St., New York
 Holden, Inc., James, Fall River, Mass.
 Hooper Sons Mfg Co., Cherry & Juniper St., Philadelphia
 Kelley Co., Henry C., 35 Worth St., New York
 Lees Mfg Co., 320 Broadway, New York
 Miller Doull Co., 79 Worth St., New York
 Samson Cordage Co., Boston
 Turner Halsey Co., 62 Leonard St., New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

Winne Co., D. P., 105 Worth St., New York
 Yawgo Line & Twine Co., Asjaway, R. I.

COUPLINGS, Electric, Multiple Point

Butte Engineering & Elec. Co., San Francisco
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Fullerton Electric Co., 15 E. 20th St., New York
 Lovell & Co., F. H., Forest St., Arlington, N. J.
 Ostrander & Co., W. R., 371 Broadway, New York

COUPLINGS, Flexible

Bartlett Hayward Co., The, Baltimore, see p. 29

COUNTERS, Revolution (See Also Tachometers)

Chadburn Ship Telegraph Co. of America, Troy, N. Y.
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Cummings Ship Instrument Works, 10 High St., Boston, see p. 104
 McNab Co., The, Bridgeport, Conn.

COUNTERS, Shaft Averaging

Cummings Ship Instrument Works, 10 High St., Boston, see p. 104

COUNTERSINKS

Becker Milling Machine Co., Hyde Park, Boston
 Brown & Sharpe, Providence, R. I.
 Braunsdorf-Mueller Co., Elizabeth, N. J.
 Cleveland Twist Drill Co., E. 49th St., Cleveland
 Detroit Twist Drill Co., 634 W. Fort St., Detroit, Mich.
 Greenfield Tap & Die Co., Greenfield, Mass.
 Lincoln Twist Drill Co., Taunton, Mass.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Montgomery & Co., 105 Fulton St., New York
 Pratt & Whitney Co., 111 Broadway, New York
 Scully Steel & Iron Co., 2364 S. Ashland Av., Chicago
 Standard Tool Co., 6900 Central Av., Cleveland
 Trojan Tool Corp., 511 W. 42d St., New York
 Union Twist Drill Co., Athol, Mass.
 Whitman Barnes Mfg Co., Akron, Ohio
 Wiley & Russell Mfg Co., Greenfield, Mass.

COVERS, Canvas (See Canvas Goods)

COWLS, Ventilating

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Erickson & Co., Hub. H., 3037 N. Western Av., Chicago
 Kirk & Blum Mfg Co., Spring Grove Av., Cincinnati
 Ohio Body & Blower Co., Cleveland
 Stevens-Aylsworth Co., Inc., 253 Broadway, New York
 Webb & Son Co., Elisha, 136 So. Front St., Philadelphia

CRADLES, Boat (See Chocks & Cradles)

CRANES, Floating

Browning & Co., Victor R., Cleveland
 Great Lakes Engrg Works, 5 Nassau St., New York
 McMyler Interstate Co., Cleveland
 Manitowoc Shipbuilding Co., Manitowoc, Wis.
 Terry Mfg Co., Edw. F., Grand Central Term., New York
 Wellman-Seaver-Morgan Co., Cleveland

CRANES, Gantry

Industrial Works, Bay City, Mich.
 Lakeside Bridge & Steel Co., No. Milwaukee, Wis.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
 Terry Mfg Co., Edw. F., Grand Central Term., New York

CRANES, Industrial, Truck

Baker Co., The R. & L., Cleveland

CRANES, Locomotive

Brown Hoisting Machy Co., The, Cleveland
 Browning Company, The, Cleveland
 Industrial Works, Bay City, Mich.
 Northwest Engrg Co., Green Bay, Wis.

CRANES, Travelling

Box & Co., Inc., Alfred, Philadelphia
 Browning Co., The, Cleveland
 Cyclops Iron Works, 837 Folsom St., San Francisco
 Industrial Works, Bay City, Mich.
 Lakeside Bridge & Steel Co., No. Milwaukee, Wis.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Northern Engrg Wks., Detroit, Mich.

Northwest Engrg Co., Green Bay, Wis.
 Pawling & Harnishfeger, Milwaukee, Wis.
 Payne & Co., N. B., 25 Church St., New York
 Reading Chain & Block Corp., Reading, Pa.
 Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
 Whiting Fdry & Equipment Co., Harvey, Ill.

CRANES, Wrecking

Browning Company, The, Cleveland
 Industrial Works, Bay City, Mich.

CRUCIBLE COVERS

Bartley Crucible Co., J., Trenton
 Dixon Crucible Co., Jos., Jersey City, N. J.
 General Platers Supply Co., 489 Broome St., New York
 New Chicago Crucible Co., 2525 Claybourn Av., Chicago
 Ross-Tacony Crucible Co., Tacony, Philadelphia
 Taylor Inc., Robt., J., 1900 Callohill St., Philadelphia

CRUCIBLES, Fire Clay

Denver Fire Clay Co., The, 742 Champa, Denver, Col.

CRUCIBLES, Graphite

Acheson Graphite Co., Niagara Falls, N. Y.
 Dixon Crucible Co., Jos., Newark, N. J.
 McCullough-Dalzell Crucible Co., Pittsburgh
 Woodison Co., The E. J., Detroit

CUPS, Oil & Grease

American Injector Co., 173 14th St., Detroit, Mich.
 Bower Mfg Co., Auburn, N. Y.
 Detroit Lubricator Co., Lincoln Av., Detroit, Mich.
 Gem Metal Products Corp., 190 Hinsdale St., Bklyn., N. Y.
 Hall Manufacturing Co., Harrison, N. J.
 Lunkenheimer Co., Cincinnati
 McNab & Harlin Mfg Co., 55 John St., New York
 Montgomery & Co., 105 Fulton St., New York
 Nathan Manufacturing Co., Flushing, N. Y.
 Nat'l Metal Spin. & Stamp. Co., 176 Grand St., New York
 Perkins Marine Lamp Works, Brooklyn, N. Y.
 Queen City Brass & Iron Wks., 1 Madison Av., New York
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67
 Swift Lubricator Co., Elmira, N. Y.
 Williams, Wm. E., 62 Front St., New York

CUTOOTS, Combination Plug & Switch, Double Pole

Arnesson Electric Co., 109 Broad St., New York
 Biddle, Jas. G., 1211 Arch St., Philadelphia
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Bunnell & Co., J. H., 32 Park Pl., New York
 Central Electric Co., Chicago
 Connecticut Electric Manufacturing Co., Bridgeport, Conn.
 Freeman Electric Co., E. H., Trenton, N. J.
 Garton Co., The W. R., 15 S. Desplaines St., Chicago
 Gordon Electric Manufacturing Co., Waterville, Conn.
 Hart & Hegeman Manufacturing Co., Hartford, Conn.
 Herzog Electric & Engineering Co., San Francisco
 Latham & Co., E. B., 550 Pearl St., New York
 Leonard-Bundy Electric Co., Cleveland
 Livingston & Co., Inc., J., 104 E. 41st St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electric Supply Co., 17 Park Pl., New York
 Mutual Electric & Machine Co., Detroit, Mich.
 Nazel Electric Co., W. G., Toledo, Ohio
 Pittsburgh Electric & Machine Co., Pittsburgh
 Stanley & Patterson, West & Hubert Sts., New York
 Trenton Electric & Conduit Co., Trenton, N. J.
 Trumbull Electric Mfg Co., Plainville, Conn.
 Western Electric Co., 151 Fifth Av., New York

CUTTERS, Abrasive Wheel Dresser

Braunsdorf-Mueller Co., 205 Madison Av., Elizabeth, N. J.
 Collmer Bros., South Bend, Ind.
 Crerar Adams & Co., Chicago
 Desmond-Stephens Mfg Co., Urbana, Ohio
 Francis & Co., Hartford, Conn.
 Kemp Machinery Co., Baltimore
 Montgomery & Co., Inc., 105 Fulton St., New York
 North Wales Machine Co., North Wales, Pa.
 Norton Co., Worcester, Mass.
 Proctor Co., Inc., S. Eugene, Boston
 Shapleigh Hardware Co., St. Louis, Mo.
 Standard Tool Co., 6900 Central Av., Cleveland
 Wheel Trueing Tool Co., Detroit, Mich.

CUTTERS, Gage, Glass

Barrett, W. L., Bristol, Conn.
 Chesterton Co., A. W., Boston
 Cutter & Woods Supply Co., Boston
 Fletcher Terry Co., Forestville, Conn.
 Goodell Pratt Co., Greenfield, Mass.
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Irvington Mfg Co., The, Irvington, N. J.
 Man-Sherwood Supply Co., Cleveland
 Millers Falls Co., Millers Falls, Mass.
 Modern Tool & Mach Wks, 350 Mulberry St., Newark N. J.
 Shapleigh Hardware Co., St. Louis, Mo.
 Strelinger Co., Chas. A., Detroit, Mich.
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York

CUTTERS, Glass

Barrett, W. L., Bristol, Conn.
 Ducommun Hardware Co., San Francisco
 Goodell Pratt Co., Greenfield, Mass.
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Machine Supply Co., Pittsburgh
 Millers Falls Co., Millers Falls, Mass.
 Montgomery & Co., 105 Fulton St., New York

CUTTERS, Milling (See Milling Cutters)

CUTTERS, Pipe & Tube

Barnes Tool Co., New Haven, Conn.
 Ducommun Hardware Co., San Francisco
 Erie Tool Works, Erie, Pa.
 Greenfield Tap & Die Co., Greenfield, Mass.
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Lindstrom Tool Wks, Inc., L., Bridgeport, Conn.
 Man-Sherwood Supply Co., Cleveland
 Mark Mfg Co., Evanston, Ind.
 Nye Tool & Machine Wks, 108 N. Jefferson St., Chicago
 Oster Mfg Co., The, Cleveland
 Oswego Tool Co., Oswego, N. Y.
 Reid Mfg Co., Erie, Pa.
 Toledo Pipe Threading Machine Co., Toledo, Ohio
 Trimont Mfg Co., Roxbury, Boston
 Walworth Mfg Co., Boston

CUTTERS, Washer (Bit, Brace & Shank)

Bonney Vise & Tool Works, Allentown, Pa.
 Cincinnati Tool Co., Norwood, Cincinnati
 Eyelet Tool Co., 40 Lincoln St., Boston (Tubular Die Only)
 Fairbanks Co., 416 Broome St., New York
 Goodell Pratt Co., Greenfield, Mass.
 Greene Tweed & Co., 109 Duane St., New York
 Modern Tool & Mach. Wks, Inc., 350 Mulberry St., Newark, N. J.

Osborne & Co., C. S., Harrison, N. J.

Shapleigh Hardware Co., St. Louis, Mo.

CUTTING & THREADING MACHINES, Pipe

Bignall & Keeler Mach Works, Edwardsville, Ill.
 Cox & Sons Co., The, Bridgeton, N. J.
 Curtis & Curtis Co., Bridgeport, Conn.
 Davis Machine Tool Co., Rochester, N. Y.
 Fox Machine Co., Jackson, Mich.
 Landis Machine Co., Waynesboro, Pa.
 Merrell Manufacturing Co., Toledo, Ohio
 Oster Manufacturing Co., Cleveland
 Saunders' Sons, Yonkers, N. Y.
 Toledo Pipe Threading Mach. Co., Toledo, Ohio
 Trimont Mfg Co., Boston

CUTTING & WELDING SETS, Arc

Burke Electric Co., Erie, Pa.
 Electric-Arc Cutting & Welding Co., Newark, N. J.
 Federal Machine & Welder Co., The, Warren, Ohio
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gibb Instrument Co., Detroit, Mich.
 Quasi-Arc Weltrode Co., Inc., 2897 Atlantic Av., Brooklyn, N. Y.

Thompson Electric Welding Co., Lynn, Mass.
 Westinghouse Electric & Mfg. Co., Pittsburgh
 Wilson Welder & Metals Co., 36th St., Brooklyn, N. Y.

CUTTING & WELDING SUPPLIES, Gas Process

Air Reduction Sales Co., 120 Broadway, New York
 Davis-Bournonville Co., Jersey City, N. J.
 Dyer & Co., G. H., Cambridge, Mass.

STERLING-COOPER CO., NEW YORK

General Welding & Equip. Co., 106 John St., New York
 Imperial Brass Mfg Co., Chicago
 K-G Welding & Cutg Co., Inc., 556 W. 34th St., New York
 Milburn Co., The Alexander, Baltimore
 Northwest Welding & Supply Co., Portland, Ore.
 Oxy-Acetylene Appliance Co., Jersey City, N. J.
 Oxygen Products Co., 2525 Liberty St., Pittsburgh
 Oxyweld Acetylene Co., Newark, N. J.
 Pittsburgh Thermoline Co., S. 20th & Wharton Sts., Pittsburgh
 Waterhouse Welding Co., Boston

CUTTING COMPOUND, Liquid & Paste

Atlantic Refining Co., Philadelphia
 Borne Scrymser Co., 80 South St., New York
 Columbia Refining Co., 90 West St., New York
 Cook's Sons, Adam, 708 Washington St., New York
 Crew Levick Co., Philadelphia
 Fiske Bros. Refining Co., 24 State St., New York
 Galena Signal Oil Co., Franklin, Pa.
 Globe Refining Co., Cleveland
 Metal Lubricant Co., Philadelphia
 National Gum & Mica Co., 11th Av. & 59th St., New York
 N. Y. & N. J. Lubricant Co., 401 Broadway, New York
 Pierce Oil Corp., St. Louis, Mo.
 Sun Co., The, Philadelphia
 Swan & Finch Co., 522 Fifth Av., New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Tidewater Oil Co., 11 Broadway, New York

CYLINDERS, Gas

Ducommun Hardware Co., San Francisco
 Elyria Machine Co., Elyria, Ohio
 International Oxygen Co., Newark, N. J.
 National Tube Co., Pittsburgh
 Oxygen Products Co., Pittsburgh
 Scaife & Sons Co., Wm. B., Pittsburgh
 Tindel-Morris Co., Eddystone, Pa.

CYPRESS, Boat Building

Boyd Sinclair Lumber Co., Inc., 30 Church St., New York
 Bright, Brooks Lumber Co., Savannah, Ga.
 Douglass, Geo., 317 West St., New York
 Higgins Lumber & Export Co., Inc., New Orleans, La.
 Kells Mills & Lumber Co., Java & Provost Sts., Brooklyn, N. Y.
 Keyes, Chas. F., 472 E. 10th St., New York
 National Timber Co., Mobile, Ala.
 Stansbury, Inc., Jas. S., Fulton St., Jamaica, N. Y.
 Sterling Lumber Co., Philadelphia
 Turner Lumber Co., J. C., 50 E. 42d St., New York
 Wilson & Cochran, Lottie, La.
 Wyatt Prock Lumber Co., Widener Bldg., Philadelphia

CYPRESS, Red, Louisiana

Bright, Brooks Lumber Co., Savannah, Ga.
 Cameron Lumber Co., Newburgh, N. Y.
 Forest Lumber Co., 1270 Broadway, New York
 Gill & Son, Wm. D., Baltimore
 Hunt, Washington & Smith, Nashville, Tenn.
 Keyes, Chas. F., 472 E. 10th St., New York
 Louisiana Red Cypress Co., New Orleans, La.
 National Timber Co., Mobile, Ala.
 Riggs-Terrell Lumber Co., New Orleans, La.
 Sterling Lumber Co., Philadelphia
 Stevens-Eaton Co., 1 Madison Av., New York
 Tisdale Lumber Co., Long Island City, N. Y.
 Wyatt Prock Lumber Co., Philadelphia

D**DAVITS, Boat**

Allison & Co., Chester, Pa.
 American Balsa Co., 50 E. 42d St., New York
 Anniston Steel Co., Inc., Anniston, Ala.
 Bacon & Matheson Forge Co., Seattle, Wash.
 Bay City Forge Co., Erie, Pa.
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Camden Forge Co., Camden, N. J.

Columbia Mach Wks & Malleable Iron Co., 269 Chestnut St., Brooklyn, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Hendy Iron Works, Joshua, San Francisco
 Llewellyn Iron Works, Los Angeles
 O'Leary & Son Co., A. J., 5757 W. 65th St., Chicago
 Steward Davit & Equip Corp., 17 Battery Pl., New York
 Upson-Walton Co., Cleveland

DECK COVERING

Asbestolith Mfg Co., 1 Madison Av., New York
 Beaver Tile & Specialty Co., 442 W. 42d St., New York
 Byerley & Sons, Cleveland
 Kennedy, Inc., David E., 62 W. 14th St., New York
 Linotol Flooring Co., 15 Whitehall St., New York, see p. 31
 Marine Decking & Supply Co., Philadelphia, see p. 6
 Philadelphia Mineral Flooring Co., 5632 Sumner St., Philadelphia
 Sanicrete Compos'n Floor. Co., Crozer Bldg., Philadelphia
 Scheel, R. O., 9 S. 18th St., Philadelphia
 Thompson-Kirkpatrick Co., The., 3339 Lancaster Av., Philadelphia
 Twentieth Century Mineral Flooring Co., 812 Nobel St., Philadelphia

DECK FITTINGS

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Carpenter & Co., Geo. B., Chicago
 Central Fdry Co., 90 West St., New York
 Doud-Mac Farlane Machy Co., Tacoma
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Kainer & Co., Chicago
 Main Iron Works, San Francisco
 Malleable Iron Fittings Co., Branford, Conn.
 Penn Seaboard Steel Corp., Franklin Trust Bldg., Philadelphia, see p. 18
 Schoen-Jackson Co., Philadelphia
 Stevens Aylsworth Co., Inc., 253 Broadway, New York
 Thatcher Propeller & Fdry Corp., Albany, N. Y.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York

DECK LIGHTS

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Delaware Marine Mfg Co., Wilmington, Del.
 Doud-Mac Farlane Machy Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Kainer & Co., Chicago
 Stevens Aylsworth Co., Inc., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Wilcox, Crittenden & Co., Middletown, Conn.

DECK MACHINERY (See Also Capstans, etc.)

Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, s. p. 30
 Kerr Machinery Corp., Detroit, Mich.
 Sumner Iron Works, Everett, Wash.

DECK PLATES (See Deck Fittings)**DECKING, Composition (See Composition Decking)****DECKING, Steel (See Steel Plates)****DECKING, Wood (See Lumber, Also Hardwoods)****DEPTH RECORDERS**

Brandis & Son's, Inc., 754 Lexington Av., Brooklyn, N. Y.
 Bristol Co., Waterbury, Conn.
 Foxboro Co., Inc., Foxboro, Mass.
 Hand & Sons Co., J. E., Haddonfield, N. J.
 Moeller, A. E., Brooklyn, N. Y.
 Nautical Inst Mfg Co., 47 West St., New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Ulmer Co., J. C., 1791 E. 38th St., Cleveland

DERRICKS AND FITTINGS

American Hoist & Derrick Co., St. Paul, Minn.
 Bay State Iron Works Corp., 366 Fifth Av., New York
 Buffalo Hoist & Derrick Co., Buffalo
 Byers Machine Co., J. F., Ravenna, Ohio

Clyde Iron Works, Duluth, Minn.
 Green Co., Inc., G. S., 74 Warren St., New York
 Harvey & Harvey, Augusta, Me.
 Kelley Co., E. B., G. C. T., New York
 Lakeside Bridge & Steel Co., Milwaukee, Wis.
 Lidgerwood Mfg Co., 96 Liberty St., New York
 Maine Electric Co., Portland, Me.
 Mead-Morrison Mfg Co., E. Boston
 Mundy Hoisting Engine Co., J. S., Newark, N. J.
 O'Rourke Crane & Engrg Co., 366 Fifth Av., New York
 Superior Iron Works, Superior, Wis.
 Whitehead & Kale Iron Works, Detroit, Mich.

DETACHING GEAR, Boat (See Boat Releasing Gear)

DIAPHRAGMS, Metallic

U. S. Indestructible Gasket Co., 50 Church St., New York

DIE BLOCKS

Allison & Co., Chester, Pa.
 Bacon & Matheson Forge Co., Seattle, Wash.
 Heppenstall Forge & Knife Co., Pittsburgh
 Pollak Steel Co., Cincinnati
 Ryerson & Son, Jos., T., Chicago
 Tioga Steel & Iron Co., Philadelphia

DIE SETS, Marking (See Marking Sets, Die)

DIES, Bolt

Machine Screw
 Machinists'
 Pipe (Left and Right Hand)
 Solid Square Bolt

American Tap & Die Co., Greenfield, Mass.
 Armstrong Mfg Co., Bridgeport, Conn.
 Blancke Co., Inc., L. C., 10 Thomas St., New York
 Borden Co., Warren, Ohio
 Brubaker & Bros., W. L., 50 Church St., New York
 Butterfield & Co., Derby Line, Vt.
 Chase Engineering Co., Fox Chase, Philadelphia
 Conant & Donelson Co., Conway, Mass.
 Crown Die & Tool Co., Chicago
 Erie Tool Works, Erie, Pa.
 Eureka Company, North East, Pa.
 Frasse & Co., Inc., Peter A., 417 Canal St., New York
 Garrison Brass & Machine Works, 107 W. 13th St., New York
 Grand Tool & Mach Wks, Inc., 161 Grand St., New York
 Hart Mfg Co., Cleveland
 Holbrook, Merrill & Stetson, San Francisco
 Ideal Tool & Mfg Co., Beaver Falls, Pa.
 Indianapolis Drop Forging Co., Indianapolis, Ind.
 Keene & Co., Inc., W. R., 90 W. Broadway, New York
 Landis Machine Co., Waynesboro, Pa.
 Maddock & Co., Philadelphia
 Marine Hdw. Equip. Co., So. Portland, Me.
 Marshall-Wells Co., Duluth, Minn.
 Meyers Co., W. F., Bedford, Ind.
 Modern Tool Co., Erie, Pa.
 Monarch Engineering Co., Dayton, Ohio
 Oster Mfg Co., Cleveland
 Pidgeon Iron Co., Thomas, Memphis, Tenn.
 Polk & Son Co., A. J., Millersburg, Pa.
 Pratt & Whitney Co., Hartford, Conn.
 Pierce Hardware Co., Inc., Taunton, Mass.
 Reed Mfg Co., Erie, Pa.
 Russell Mfg Co., Greenfield, Mass.
 Shapleigh Hdw. Co., St. Louis, Mo.
 Simmons Hardware Co., Philadelphia
 Standard Supply & Equip. Co., Philadelphia
 Standard Tool Co., Cleveland
 Turner, Inc., A. C., Pittsburgh
 Upson-Walton Co., 1310 W. 11th St., Cleveland
 Ward Tool & Forging Co., Latrobe, Pa.
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.
 Winton Bros., Wrentham, Mass.
 Worthington Co., Geo., Cleveland

DIES, Grommet Inserting

Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Eureka Co., North East, Pa.

Maddock & Co., Philadelphia

Marine Hardware Equip. Co., So. Portland, Me.

Osborne & Co., C. S., Newark, N. J.
 Shapleigh Hardware Co., St. Louis, Mo.
 Simmons Hardware Co., Philadelphia
 Standard Supply & Equipment Co., Philadelphia
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Upson-Walton Co., 1310 W. 11th St., Cleveland
 Wilcox, Crittenden & Co., Middletown, Conn.
 Worthington Co., Geo., Cleveland

DIES, Pneumatic

Cleveland Punch & Shear Works, Cleveland
 Cleveland Steel Tool Co., Cleveland
 Marchant Co., George F., Chicago

DIES, Riveting

American Die & Tool Co., East Reading, Pa.
 Cleveland Punch & Shear Works Co., 50 Church St.,
 New York
 Cleveland Steel Tool Co., Cleveland
 Grey Mfg Co., C. M., East Orange, N. J.
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 New England Tool Co., Boston
 Rich Tool Co., Chicago
 Roberts Tool Co., Newark, N. J.

DIESEL ENGINE AUXILIARIES, Pneumatic

Rix Compressed Air & Drill Co., Inc., 505 Howard St.,
 San Francisco, see p. 1

DIESEL ENGINE—ELECTRIC PROPULSION

Dow Pump & Diesel Engine Co., Alameda, Cal.
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Winton Engine Works, Cleveland
 Worthington Pump & Machinery Corp., 115 Broadway,
 New York, see pp. 74-81

DIESEL ENGINE STARTERS

Rix Compressed Air & Drill Co., Inc., San Francisco,
 See p. 1

DIESEL ENGINES

Busch-Sulzer Bros.—Diesel Engine Co., St. Louis, Mo.,
 see pp. 32 & 33
 Cramp & Sons Ship & Engine Bldg. Co., The Wm.,
 Philadelphia
 Dow Pump & Diesel Engine Co., Alameda, Cal.
 Johannsen, H. S., 25 W. 43d St., New York
 Midwest Engine Co., Indianapolis, Ind.
 McIntosh & Seymour Corp., Auburn, N. Y.
 New London Ship & Engine Co., Groton, Conn., see p. 34
 Skandia Pacific Oil Engine Co., San Francisco
 Summer Co., H. W., Seattle, Wash.
 Western Machinery Co., Los Angeles, Cal.
 Winton Engine Works, Cleveland
 Worthington Pump & Machinery Corp., 115 Broadway,
 New York, see pp. 74-81

DIRECTION INDICATORS, Engine

Chadburn Ship Telegraph Co. of America, Troy, N. Y.
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Cummings Ship Instrument Works, 10 High St., Boston,
 see p. 104
 McNab Co., The, Bridgeport, Conn.

DISINFECTORS, DISINFECTANTS

American Disinfecting Co., 26 Cortlandt St., New York
 American Laundry Mach. Co., 134 W. 37th St., New York
 American Oil & Disinfectant Co., 196 Water St., New York
 Carbolacene Co. of America, Inc., 2 Rector St., New York
 Hospital Supply Co., The, 155 E. 23d St., New York
 Kleanall Mfg Co., 528 W. 34th St., New York
 Lentz & Sons., Chas., Philadelphia
 Merck & Co., 45 Park Place, New York
 Midland Chemical Laboratories, Inc., Dubuque, Iowa

DISTILLERS

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100

Braun & Co., C. F., San Francisco

Davidson Co., M. T., 154 Nassau St., New York

Ford & Geirrine, San Francisco

Griscom-Russell Co., The, 99 West St., New York, see p. 44

Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93

Kerr Machinery Corp., Detroit, Mich.

Row & Davis, Engineers, Inc., 90 West St., New York,
 see p. 45

$$J_0 = \frac{1}{2} \int_{\mathbb{R}^3} |\nabla u|^2 dx - \frac{1}{6} \int_{\mathbb{R}^3} |u|^6 dx \quad (1.1)$$

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS
APRIL 11, 1960
JOHN F. KELLY JR.
JANUARY 1, 1960

[illegible][illegible]

1. *Chlorophyll a* and *Chlorophyll b* content of the leaves was determined by the method of Arar and Johnson (1977).
 2. *Chlorophyll a* and *Chlorophyll b* content of the leaves was determined by the method of Arar and Johnson (1977).
 3. *Chlorophyll a* and *Chlorophyll b* content of the leaves was determined by the method of Arar and Johnson (1977).

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

2. Next, gather relevant information and data. This may involve research, consultation with experts, or collecting data from various sources.

3. Once the information is gathered, analyze it to identify patterns, trends, and potential solutions. This step often involves critical thinking and problem-solving skills.

4. After analysis, develop a plan or strategy to address the problem. This plan should outline the steps to be taken and the resources needed.

5. Implement the plan and monitor progress. This involves putting the strategy into action and regularly checking on the results to ensure they are on track.

6. Finally, evaluate the outcome and make adjustments as needed. This step involves reflecting on what worked well and what could be improved for future tasks.

Ross Heater & Mfg Co., Buffalo
Schutte & Koerting Co., Philadelphia
Wheeler Condenser & Engineering Co., Carteret, N. J.,
see p. 23

DIVERS (See Wrecking Cos., Port Data Section)

DIVIDERS, Navigator Case

Kelvin & W. O. White, Boston
Keuffel & Esser Co., Hoboken, N. J.
Makepeace, Inc., B. L., Boston
Mayers & Bros., Jos., Seattle, Wash.
Nautical Instrument Mfg Co., 47 West St., New York
Queen-Gray Co., Philadelphia
Warren-Knight Co., Philadelphia
Weule Co., Louis, San Francisco

DIVIDERS, Spring, etc. (See Calipers)

DIVING APPARATUS

Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58

Foard-Barstow Ship Chandlery Co., San Francisco
Miller-Dunn Co., Miami, Fla.
Morse & Son, Inc., Andrew J., 221 High St., Boston
Schrader's Son, Inc., A., Atlantic Av., Brooklyn, N. Y.

DOCK SUPPLIES

Neptunus Ship Supply Co., Inc., 73 Front St., New York,
see p. 14

(See also Ship Chandlers, Port Data Section)

DOGS, Bilge Block, Steel

Michigan Bolt & Nut Works, Detroit, Mich.

DOGS, Lathe (See Lathe Dogs)

DOGS, Shipwrights' (See Also Drop Forging)

Michigan Bolt & Nut Works, Detroit, Mich.

DOORS, Bulkhead

Channon Mfg Co., Jas. H., Chicago

DOORS, Cold Storage

Brunswick Refrigerating Co., New Brunswick, N. J.,
see p. 95

Clothel Refrigerating Co., 61 Broadway, New York, see
p. 96

Ehrlich & Sons Mfg Co., H., St. Joseph, Mo.
Frick Company, Waynesboro, Pa., see p. 97
Gay & Sons Manufacturing Co., Los Angeles
Jamison Cold Storage Door Co., Hagerstown, Md.
Stevens Co., The B. A., Toledo, Ohio
Victor Cooler Door Co., The B. A., Hagerstown, Md.
Ward Refrigerating & Mfg Co., Los Angeles
York Manufacturing Co., York, Pa., see p. 98

DOORS, Metal

American Car & Foundry Co., 165 Broadway, New York,
see p. 99

Brooklyn Fireproof Sash & Door Co., 101 Richardson Av.,
Brooklyn, N. Y.

Detroit Steel Prod. Co., 110 W. 42d St., New York
Empire Art Metal Co., Inc., College Point, N. Y.
Goetzman, H. W., Rochester, N. Y.
Hale & Kilburn, 18th St., & Lehigh Av., Philadelphia
International Casement Co., Jamestown, N. Y.
Kawneer Mfg Co., Niles, Mich.
Leonard Sheet Metal Works, Hoboken, N. J.
Oriental Fireproof Sash & Door Co., 721 E. 133d St.,
New York
Pennsylvania Metal Co., 94 First St., Jersey City, N. J.
Solar Metal Prod. Co., Inc., Columbus, Ohio

DORIES, (See Boats, Life & Surf)

DOUGH MIXERS

Barth & Son, L., 32 Cooper Square, New York
Brett, Harvey, 141 W. 46th St., New York
Buell Co., B. B., Seattle, Wash.
Dohrmann Co., Nathan, San Francisco
Gem Metal Prod Corp, 190 Hinsdale St., Brooklyn, N. Y.
Hobart Manufacturing Company, Troy, Ohio
Hoos Company, John, Baltimore
Johnson Company, H. A., Boston
Marshall-Wells Co., Duluth, Minn.
Peerless Bread Machine Co., Sidney, Ohio

Pick & Company, Albert, Chicago
Read Machine Co., Inc., York, Pa.
Triumph Manufacturing Co., Cincinnati
University Manufacturing Co., Philadelphia

DOUGH TROUGHS

Union Steel Products Co., Ltd., Albion, Mich., see p. 2

DRAFT GAGES, Fireroom

American Steam Gauge & Valve Co., Boston
Ashton Valve Co., The, 161 First St., Cambridge, 41,
Mass., see p. 111

Crosby Steam Gage & Valve Co., Boston
Peabody Engineering Corp, 331 Madison Av., New York,
see p. 65

Precision Instrument Co., Newark, N. J.
Taylor Instrument Cos., Rochester, N. Y.
Uehling Instrument Co., 71 Broadway, New York

DRAFT INDICATORS, Ship

Pneumercator Co., 15 Park Row, New York

DRAWING BOARDS (See Drawing Room Equipment)

DRAWING INSTRUMENTS

Gurley, W. & L. E., Troy, N. Y.
Keuffel & Esser Co., Hoboken, N. J.
Lietz Co., A., 61 Post St., San Francisco
Makepeace, Inc., B. L., 387 Washington St., Boston
Mayer & Bros., Jos., Seattle, Wash.
Moeller, A. E., 263 Sumpter St., Brooklyn, N. Y.
N. Y. Blue Print Paper Co., 96 Reade St., New York
Pease Co., C. F., 230 Institute Place, Chicago
Post Co., Frederick, 3635 N. Hamlin Av., Chicago
Queen-Gray Co., 618 Chestnut St., Philadelphia
Starrett Co., L. S., Athol, Mass.
Warren-Knight Co., 136 N. 12th St., Philadelphia
Weil & Co., J. H., 1304 Arch St., Philadelphia

DRAWING MATERIALS

(Board, Cloth, Paper, Ink, etc.)

National Tracing Cloth Co., Saylesville, R. I.
N. Y. Blue Print Paper Co., 96 Reade St., New York
Pease Co., C. F., 230 Institute Place, Chicago
Spaulding-Moss Co., 34 Federal St., Boston

DRAWING ROOM EQUIPMENT

Alteneder & Sons, Theo., Philadelphia
American Drafting Furniture Co., Rochester, N. Y.
Amsler Blue Print Co., 30 Church St., New York
Barclay & Sons, J. D., Philadelphia
Berger & Sons, Boston
Brandis & Sons, 754 Lexington Av., Brooklyn, N. Y.
Buff & Buff Mfg Co., Boston
Central Blue Print Co., 563 Third Av., New York
Defiance Mfg Co., 384 Broadway, New York
Dietzgen Co., E., 218 E. 23d St., New York
Keuffel & Esser Co., 127 Fulton St., New York
Leet Bros., Inc., Washington, D. C.
N. Y. Blue Print Co., 96 Reade St., New York
Pease Co., C. F., Chicago
Peerless Blue Print Co., 341 Fifth Av., New York
Ruehle Co., E. G., 180 Fulton St., New York
Technical Supply Co., Philadelphia
Warren-Knight Co., Philadelphia
Weil & Co., J. H., Philadelphia

DREDGING MACHINERY

Ellicott Machine Corp, Baltimore
Flory Mfg Co., S., Bangor, Pa.
Lidgerwood Mfg Co., 96 Liberty St., New York
Morris Machine Works, Baldwinville, N. Y.
Pittsburgh-Des Moines Steel Co., Pittsburgh
Seattle Machine Works, Seattle, Wash.
Superior Iron Works, Superior, Wis.
Vulcan Iron Works, Jersey City, N. J.
Yuba Mfg Co., Marysville, Cal.

DREDGING PUMPS (See Pumps, Subhead)

DRESSERS, Abrasive Wheel

Acme Diamond Tool Co., 12 John St., New York
Bridgeport Safety Emery Wheel, Bridgeport, Conn.
Burgess-Norton Manufacturing Co., Geneva, Ill.
Chicago Wheel Manufacturing Co., Chicago

1. The first step in the process of the investigation is the identification of the problem. This is done by the investigator, who is usually a member of the research team. The investigator will identify the problem by looking at the data and trying to find out what is going on.

Desmond-Stephan Mfg Co., The, Urbana, Ohio
 Erie Tool Works, Erie, Pa.
 Fairbanks Company, 416 Broome St., New York
 Hampden Corundum Co., Springfield, Mass.
 Maddock & Company, Philadelphia
 Mark Manufacturing Co., Evanston, Ill.
 Marshall-Wells Company, Duluth, Minn.
 Meyers Company, G. F., Bedford, Ind.
 Norton Company, Worcester, Mass.
 Penn. Grinding Wheel Co., The, Wayne Junction, Pa.
 Shapleigh Hardware Co., Philadelphia
 Simmons Hardware Co., Philadelphia
 Standard Supply & Equipment Co., Philadelphia
 Standard Tool Co., Cleveland
 Western Tool & Mfg Company, The, Springfield, Ohio
 Worthington Company, G., 802-32 St. Clair Av., Cleveland

DRESSERS, Commutator

Armstrong & White, Pittsburgh
 Central Electric Co., Chicago
 Ideal Commut'r Dresser Co., 16 S. Dearborn St., Chicago

DRIER PAINT (See Paints)**DRILLING & TAPPING MACHINES**

American Tool Works Co., Cincinnati
 Barnes Co., W. F. & John, Rockford, Ill.
 Bickell & Thomas, Greenfield, Mass.
 Cincinnati Pulley Machine Co., Cincinnati
 Detroit Tool Co., Detroit, Mich.
 Dorman, John H., 1 Bethune St., New York
 Hoefer Mfg Co., Freeport, Ill.
 Leland Gifford Co., Worcester, Mass.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pratt & Whitney Co., Hartford, Conn.
 Rickert-Schafer Co., Erie, Pa.
 Simmons & Co., W. H., 208 Lawrence St., Cincinnati
 Sloan & Chase Mfg Co., Newark, N. J.
 Turner Machine Co., Danbury, Conn.

DRILLS, Bench

Allen Co., Chas. G., Barre, Mass.
 Barnes Co., W. F. & John, Rockford, Ill.
 Bilton Machine Tool Co., Bridgeport, Conn.
 Burke Machinery Co., Conneaut, Ohio
 Challenge Machine Co., North Wales, Pa.
 Cincinnati Pulley Machinery Co., Cincinnati
 Clark Electric Co., James, Jr., Louisville, Ky.
 Demco Machine Tool Co., Cleveland
 DeMooy Machine Co., Cleveland
 Francis Reed Co., Worcester, Mass.
 Henry & Wright Mfg Co., Hartford, Conn.
 Hoefer Mfg Co., Freeport, Ill.
 Langelier Mfg. Co., Providence, R. I.
 Mason, Inc., Arthur C., Hawthorne, N. J.
 Miller Falls Co., Miller Falls, N. Y.
 Oliver Mfg Co., Buffalo
 Pratt & Whitney Co., Hartford, Conn.
 Rockford Drilling Machine Co., Rockford, Ill.
 Segourney Tool Co., Hartford, Conn.
 Simmons Co., W. H., Cincinnati
 Standard Mfg Co., Bridgeport, Conn.
 Taylor Fenn Mfg. Co., Hartford, Conn.
 Winterhoff Tool & Machine Co., Elkhart, Ind.

DRILLS, Breast, Flat, Hand, Ratchet

Armstrong Bros. Tool Co., Chicago
 Buffalo Forge Co., Buffalo
 Chicago Pneumatic Tool Co., 52 Vanderbilt Av., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Helwig Mfg Co., St. Paul, Minn.
 Keene & Co., Inc., W. R., 90 West Broadway, New York
 Keystone Mfg. Co., Buffalo
 Lincoln Twist Drill Co., Taunton, Mass.
 Lovejoy Tool Works, Chicago
 Maddock & Co., Philadelphia
 Miller Falls Co., Miller Falls, Mass.
 National Twist Drill & Tool Co., Detroit, Mich.
 North Bros. Mfg Co., Philadelphia
 Pratt & Whitney Co., Hartford, Conn.
 Sargent & Co., 94 Center St., New York
 Simmons Hardware Co., Philadelphia
 Standard Supply & Equip. Co., Philadelphia

Standard Tool Co., Cleveland
 Union Twist Drill Co., Athol, Mass.
 Whitman & Barnes Mfg Co., Akron, Ohio
 Worthington Co., Geo., Cleveland

DRILLS, Multiple Spindle

Allen Co., Chas. G., Barre, Mass.
 Aurora Machine Works, Aurora, Ind.
 Baker Bros., Toledo, Ohio
 Barnes Co., W. F. & John, Rockford, Ill.
 Barnes Drill Co., Rockford, Ill.
 Bausch Machine Tool Co., Springfield, Mass.
 Bilton Machine Tool Co., Bridgeport, Conn.
 Cincinnati Bickford Co., Cincinnati
 Cincinnati Pulley Machine Co., Cincinnati
 Colburn Machine Tool Co., Franklin, Pa.
 Defiance Machine Works, Defiance, Ohio
 Foote Burt Co., Cleveland
 Fox Machine Co., Jackson, Mich.
 Harrington Sons & Co., E., Philadelphia
 Henry & Wright Mfg Co., Hartford, Conn.
 Hoefer Mfg Co., Freeport, Ill.
 Langelier Mfg Co., Providence, R. I.
 Leland & Clifford Co., Worcester, Mass.
 Minster Machine Co., Minster, Ohio
 Moline Tool Co., Moline, Ill.
 Mueller Machine Tool Co., Cincinnati
 Newton Machine Tool Co., Philadelphia
 Pilton Machine Works, William, Philadelphia
 Pratt & Whitney Co., Hartford, Conn.
 Reed Co., Francis, Worcester, Mass.
 Reid-Prentice Co., Worcester, Mass.
 Rockford Drilling Machine Co., Rockford, Ill.
 Rockford Lathe & Drill Co., Rockford, Ill.
 Segourney Tool Co., South Bend, Ind.
 Sibley Machine Tool Co., South Bend, Ind.
 Silver Mfg Co., Salem, Ohio
 Sipp Machine Co., Paterson, N. J.
 Taylor & Fenn Co., Hartford, Conn.
 Washburn Shops, Worcester, Mass.

DRILLS, Electric, Portable

Black & Decker Mfg Co., The, Baltimore
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Cincinnati Electric Tool Co., Cincinnati
 Clark Electric Co., Jas., Jr., Louisville, Ky.
 Hisey Wolf Machine Co., Cincinnati
 Independent Pneumatic Tool Co., Chicago
 Neil & Smith Elec. Tool Co., Cincinnati
 Standard Electric Tool Co., Cincinnati
 Stow Mfg Co., Binghamton, N. Y.
 U. S. Electrical Tool Co., Cincinnati
 Wisconsin Electric Co., Racine, Wis.

DRILLS, Pneumatic, Portable

Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Cleveland Pneumatic Tool Co., Cleveland
 Herwig Manufacturing Co., St. Paul, Minn.
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Inter-Continental Mach Corp., 40 Liberty St., New York
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Pittsburgh Pneumatic Tool Co., Canton, Ohio
 Rix Compressed Air & Drill Co., Inc., 505 Howard St.
 San Francisco, See p. 1

DRILLS, Radial

American Tool Works Co., The, Cincinnati
 Bausch Machine Tool Co., Springfield, Mass.
 Carlton Machine Tool Co., The, Cincinnati
 Cincinnati Bickford Co., Cincinnati
 Dreses Machine Tool Co., Cincinnati
 Fosdick Machine Tool Co., Cincinnati
 Hammond Mfg Co., Cleveland
 Harrington Sons & Co., E., Philadelphia
 Henry & Wright Mfg Co., Hartford, Conn.
 Lynd-Farquhar Co., Boston
 Meisenhelter Machy Co., L. R., Philadelphia
 Morris Machine Tool Co., Cincinnati
 Mueller Machine Tool Co., Cincinnati
 Niles-Bement-Pond Co., 111 Broadway, New York
 Reed-Prentice Co., Worcester, Mass.
 Ryerson & Son, Joseph T., Chicago

Taylor & Fenn Co., Hartford, Conn.
 Triumph Machine Tool Co., 1279 E. 55th St., Cleveland
 Western Machine Tool Works, Holland, Mich.

DRILLS, Radial, Wall

Lynd-Farquhar Co., Boston
 Pawling & Harnishfeger, Milwaukee, Wis.
 Wickes Bros., Saginaw, Mich.

DRILLS, Sensitive

Allen Co., Chas. G., Barre, Mass.
 Bilton Machine Tool Co., Bridgeport, Conn.
 Canedy-Otto Mfg Co., Chicago Heights, Ill.
 Cincinnati Bickford Co., Cincinnati
 Cincinnati Pulley & Machine Co., Cincinnati
 Clark Electric Co., Jas., Louisville, Ky.
 Detroit Tool Co., Detroit, Mich.
 Fox Machine Co., Jackson, Mich.
 Henry & Wright Mfg Co., Hartford, Conn.
 High Speed Hammer Co., Rochester, N. Y.
 Hoefler Mfg Co., Freeport, Ill.
 Langelier Mfg Co., Providence, R. I.
 Leland & Gifford, Worcester, Mass.
 Mason, Inc., A. C., Hawthorne, N. J.
 Murray-Myhea Machine Co., Antoga, Wis.
 Pratt & Whitney Co., Hartford, Conn.
 Reed Co., Francis, Worcester, Mass.
 Reed-Prentice Co., Worcester, Mass.
 Sigourney Tool Co., Hartford, Conn.
 Sipp Machine Co., Paterson, N. J.
 Standard Mfg Co., Hartford, Conn.
 Taylor & Fenn Co., Hartford, Conn.
 Washburn Shops, Worcester, Mass.

DRILLS, Twist

Alvord Reamer & Tool Co., Millersburg, Pa.
 Boker & Co., Inc., H., 101 Duane St., New York
 Buckeye Twist & Drill Co., The, Alliance, Ohio
 Clark Equipment Co., Buchanan, Mich.
 Cleveland Twist Drill Co., Cleveland
 Colton Co., Arthur, Detroit, Mich.
 Detroit Twist Drill Co., Detroit, Mich.
 Fastfeed Drill & Tool Corp., Toledo, Ohio
 Keene & Co., Inc., W. R., 90 Broadway, New York
 Latrobe Tool Co., Latrobe, Pa.
 Lincoln Twist Drill Co., Taunton, Mass.
 Morse Twist Drill & Mach. Co., New Bedford, Mass.
 National Twist Drill Co., Detroit, Mich.
 New Process Twist Drill Co., Taunton, Mass.
 Pratt & Whitney Co., Hartford, Conn.
 Rich Tool Co., Chicago
 Standard Tool Co., Cleveland
 Syracuse Twist Drill Co., Syracuse, N. Y.
 Union Twist Drill Co., Athol, Mass.
 Whitman & Barnes Mfg Co., Akron, Ohio

DRILLS, Upright

Aurora Tool Works, Aurora, Ind.
 Baker Bros., Toledo, Ohio
 Barnes Co., W. F. & John, Rockford, Ill.
 Barnes Drill Co., Inc., Rockford, Ill.
 Canedy-Otto Mfg Co., Chicago Heights, Ill.
 Cincinnati Bickford Co., Cincinnati
 Colburn Machine Tool Co., Franklin, Pa.
 Davis Machine Tool Co., Rochester, N. Y.
 Hoefler Mfg Co., Freeport, Ill.
 Medina Machine Co., Medina, Ohio
 Reed-Prentice Co., Worcester, Mass.
 Richards Machine, Milwaukee
 Rockford Drilling Machine Co., Rockford, Ill.
 Rockford Lathe & Drill Co., Rockford, Ill.
 Royersford Foundry & Machine Co., Royersford, Pa.
 Sibley Machine Co., South Bend, Ind.
 Silver Mfg. Co., Salem, Ohio
 Strafer Machinery Co., Baltimore
 Turner Machine Co., Danbury, Conn.

DRIVERS, Stud

Keystone Mfg Co., Clearfield, Pa.
 Lovejoy Tool Works, Chicago

DROP FORGINGS

Alvord Reamer Co., Millersburg, Pa.
 American Car & Foundry Co., 165 Broadway, New York,
 see p. 99
 Bacon & Matheson Forge Co., Seattle, Wash.
 Baldt Anchor Co., Chester, Pa.
 Benton Harbor Fdry Co., Benton Harbor, Mich.
 Bethlehem Steel Co., Bethlehem, Pa.
 Billings & Spencer Co., The, Hartford, Conn.
 Brewer-Titchener Corp., The, Cortland, N. Y.
 Canton Drop Forging & Mfg Co., The, Canton, Ohio
 Champion Mach & Forging Co., Cleveland
 Columbia Mach Works & Malleable Iron Co., 209 Chest-
 nut St., Brooklyn, N. Y.
 Columbus Bolt Works Co., Columbus, Ohio
 Columbus Forge & Iron Co., The, Columbus, Ohio
 Detroit Forging Co., Detroit, Mich.
 Diamond Forging Co., Pittsburgh
 Drop Forging Co. of N. Y., Jersey City, N. J.
 Eccles Co., Richard, Auburn, N. Y.
 Endicott Forging & Mfg Co., Inc., Endicott, N. Y.
 General Drop Forge Co., Buffalo
 Henry & Allen, Inc., Auburn, N. Y.
 Herbrand Co., Fremont, Ohio
 Keystone Drop Forge Works, Chester, Pa.
 Lakeside Forge Co., Erie, Pa.
 Kilborn & Bishop Co., The, New Haven, Conn.
 Laughlin Co., The Thomas, Portland, Me.
 McKay Co., James, Pittsburgh
 Marine Hardware Equip. Co., So. Portland, Me.
 Michigan Bolt & Nut Works, Detroit, Mich.
 Pacific Block & Forging Co., San Francisco
 Page-Storms Drop Forge Co., Chicopee, Mass.
 Pollak Steel Co., The, 120 Broadway, New York
 Richmond Forgings Corp., Richmond, Va.
 Scranton Forging Co., The, Scranton, Pa.
 Standard Equipment Co., Los Angeles
 Storms Drop Forging Co., Springfield, Mass.
 Union Drop Forge Co., Chicago
 United States Chain & Forging Co., Union Arcade,
 Pittsburgh, see p. 15
 Vogt Machine Co., Henry, 149 Broadway, New York
 Wilcox, Crittenden & Co., Middletown, Conn.
 Williams & Co., J. H., 150 Hamilton Av., Bklyn., N. Y.

DRUMS, Paint

American Steel Packing Co., Defiance, Ohio
 Barnes & Co., Winfield S., Philadelphia
 Bartels & Sons Co., Wilkes-Barre, Pa.
 Delphos Manufacturing Co., Delphos, Mich.
 Lawson Co., F. H., Cincinnati
 Messenger & Parks Mfg. Co., Aurora, Ill.
 Meurer Steel Barrel Co., Inc., Borden Av., Bklyn., N. Y.
 Phillips & Buttorf Mfg Co., Nashville, Tenn.
 Reliance Metal Spinning & Stamping Co., Inc., 160 John
 St., Brooklyn, N. Y.
 Rochester Can Co., Rochester, N. Y.
 Saginaw Sheet Metal Works, Saginaw, Mich.
 Yardell Bros., Co., Utica, N. Y.
 Zahner Metal Sash & Door Co., Canton, Ohio

DRY DOCKS, Location, Size, etc.

(See Shipbuilding Section)

DRYER, Japan (See Paints)**DUPLICATING MACHINES**

Commercial Efficiency Co., 50 Church St., New York
 Dick Co., A. B., Chicago
 Duplicator Manufacturing Co., 50 Church St., New York
 Graphic Duplicator Co., 228 W. Broadway, New York
 Shapirograph Co., 228 W. Broadway, New York

DYNAMOMETERS

Chatillon & Sons, John, 89 Cliff St., New York
 Diehl Mfg Co., Elizabeth, N. J.
 Electric Specialty Co., Stamford, Conn.
 Holtzer-Cabot Elec. Co., 125 Amory St., Roxbury, Mass.
 Sprague Electric Works, Philadelphia

DYNAMOS (See Generators)

STERLING-COOPER CO., NEW YORK

E

EARTHENWARE (See Chinaware)**EJECTORS, Air**

Alberger Pump & Condenser Co., 80 West St., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Worthington Pump & Machinery Corp, 115 Broadway,
 New York, see pp. 74-81

EJECTORS, Ash (See Ash Ejectors)**EJECTORS, Water**

American Injector Co., Detroit, Mich.
 Chaplin-Fulton Manufacturing Co., Pittsburgh
 Eynon-Evans Manufacturing Co., Philadelphia
 Hancock Inspirator Co., 119 W. 40th St., New York
 Hayden & Darby Mfg Co., 119 W. 40th St., New York
 Jenkins Bros., 80 White St., New York
 Lunkenheimer Co., Cincinnati
 Ohio Injector Co., Wadsworth, Ohio
 Penberthy Injector Co., Detroit, Mich.
 Powell Co., The Wm., Cincinnati
 Schutte & Koerting Co., Philadelphia
 Thompson & Co., Richard, 187 Greenwich St., New York
 Williams Valve Co., The D. T., Cincinnati

ELBOWS, Conduit, Tube, etc.

American Tube & Pipe Bending Co., Cleveland
 Bard Union Co., Inc., Norwich, Conn.
 Brown-Wales Co., Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Jefferson Union Co., Lexington, Mass.
 Kelly & Jones Co., Greenburg, Pa.
 Malleable Iron Fittings Co., Branford, Conn.
 Reading Iron Co., Reading, Pa.

ELBOWS, Water Closet, Seamless Rubber

Barrett Manufacturing Co., James, Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Federal Huber Co., Chicago
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Mott Iron Works, J. L., Trenton, N. J.
 Robert-Shaw Manufacturing Co., Youngwood, Pa.
 Sand & Son Co., A. B., 20 Vesey St., New York

ELECTRIC CRANES (See Cranes, Electric)**ELECTRIC DRILLS, ETC. (See Specific Heading)****ELECTRIC FITTINGS, Interior**

Branch
 Connection Box
 Distribution Box
 Feeder Junction Box
 Junction Box
 Receptacle & Switch
 Switch

Adapti Manufacturing Co., 919 West St., Cleveland
 Arnessen Electric Co., 109 Broad St., New York
 Austin & Co., M. B., 706 W. Jackson Blvd., Chicago
 Benjamin Electric Mfg Co., Chicago
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Central Electric Co., Chicago
 Couch Co., Inc., S. H., Norfolk Downs, Mass.
 Crouse-Hinds Co., Syracuse, N. Y.
 Fullerton Electric Co., 15 W. 20th St., New York
 Hart, Raymond S., 510 Broome St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electric Supply Co., 17 Park Place, New York
 National Metal Moulding Co., Pittsburgh
 Philadelphia Electric Co., The, 132 S. 11th St., Philadelphia
 Rattan Manufacturing Co., Keene, N. H.
 Sibley-Pitman Electric Corp., 190 Sixth Av., New York
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich.,
 see p. 43

Sprague Electric Works, 527 W. 34th St., New York
 Steel City Electric Co., Hartford, Conn.
 Triangle Conduit Co., 52 Columbus Hts., Brooklyn, N. Y.
 Western Electric Co., 151 Fifth Av., New York
 White Mfg Co., J. H., 111 N. 3d St., Brooklyn, N. Y.

ELECTRIC FITTINGS, Water Tight (See Also Specific Headings)

Crouse-Hinds Co., Syracuse, N. Y.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Horne Manufacturing Co., 2 College Pl., Brooklyn, N. Y.
 Lovell & Co., F. H., Arlington, N. J.
 Marine Electric Co., San Francisco
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich.,
 see p. 43

Western Electric Co., 151 Fifth Av., New York

ELECTRIC HEATERS (See Coils, Heating, Electric)**ELECTRIC HOISTS (See Hoists, Electric)****ELECTRIC LIGHTING FIXTURES (See Lighting)****ELECTRIC WELDING (See Also Cutting & Welding Equipment, Arc)**

Baltimore D. D. & Shipbuilding Co., Baltimore
 Charleston D. D. & Mach. Co., Charleston, S. C.
 Delaware Shipbuilding & Repair Co., Philadelphia
 Duvall & Co., Geo. W., Norfolk, Va.
 Electric Weld. Co. of America, 764 Court St., Bklyn, N. Y.
 Fletcher & Co., W. & A., Hoboken, N. J.
 Fuller Co., Geo. A., Wilmington, N. C.
 Liberty Iron & Wire Co., Norfolk, Va.
 Moore Shipbuilding Co., San Francisco
 Morse D. D. & Repair Co., Ft. 54th St., Brooklyn, N. Y.
 New Orleans Electric Welding Co., New Orleans, La.
 Portland Ship Ceiling Co., Portland, Me.
 Sarroco, P. J., San Francisco
 Southland Steamship Co., Savannah, Ga., see p. 101
 Straub Manufacturing Co., Oakland, Cal.
 Todd Shipyards, Inc., 15 Whitehall St., New York
 United Marine Contracting Corp, 15 Whitehall St., New
 York, see p. 128
 Wilson Welder & Metals Co., 36th St., Brooklyn, N. Y.

ELECTRICAL INSTRUMENTS (See Also Specific Heading)

Bristol Co., The, Waterbury, Conn.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Jewell Electrical Instrument Co., Chicago
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Weston Electric Instrument Co., Newark, N. J.

ELECTRICAL INSULATION (See Insulation, Electrical)**ELECTRICAL MACHINERY & SUPPLIES (See Specific Heading)****ELECTROLIERS (See Lighting Fixtures, Electric)****ELECTROLYTE (See Acid Sulphuric, Dilute)****ELEVATING & CONVEYING MACHINERY**

American Elevator & Machine Co., Louisville, Ky.
 Alvey Manufacturing Co., St. Louis, Mo.
 Curran Elevator Co., Jas. H., Cincinnati
 Curtis Pneumatic Machine Co., St. Louis, Mo.
 De Mayo Engrg Corp, Pier 62, North River, New York
 Gifford-Wood Co., Hudson, N. Y.
 Grote Manufacturing Co., F., Evansville, Ind.
 Hunt Co., C. W., Inc., 143 Liberty St., New York
 Kaestner & Hecht Co., Chicago
 N. Y. Revolving Portable Elevator Co., Jersey City, N. J.
 Payne Co., F. S., Cambridge, Mass.
 Speidel, J. G., Reading, Pa.
 Standard Conveying Co., No. St. Paul, Minn.
 Warner Elevator Co., Cincinnati

EMERY, Ground (See Also Grinding Compounds)

Eimer & Amend, 211 Third Av., New York
 General Platers Supply Co., 489 Broome St., New York
 Hamilton Emery & Corundum Co., Chester, Mass.
 Montgomery & Co., 105 Fulton St., New York
 Rhodes & Co., James H., 115 Fulton St., New York
 Shoemaker & Busch, 511 Arch St., Philadelphia
 Stiles, H. A., 93 Oliver St., Boston

STERLING-COOPER CO., NEW YORK

EMERY CLOTH (See Abrasive Cloth & Paper)**EMERY WHEELS (See Abrasive Wheels)****ENAMELWARE (See Also Galley Equipment)**

American Stamping & Enameling Co., Massillon, Ohio
 Chattanooga Stamp. & Enamel. Co., Chattanooga, Tenn.
 Cleveland Metal Products Co., The, Massillon, Ohio
 Cleveland Stamping & Tool Co., 35 Murray St., New York
 National Enamel. & Stamp. Co., 411 Fifth Av., New York
 New England Enameling Co., 200 Fifth Av., New York
 Vitreous Enameling, Cleveland
 West Lafayette Manufacturing Co., W. Lafayette, Ohio

ENGINE LOGS

Cory & Son, Inc., Chas., King & Varick Sts., New York
 Cummings Ship Instrument Works, 10 High St., Boston,
 see p. 104

ENGINE TELEGRAPHS (See Telegraphs)**ENGINEERS, Marine (Consulting)**

Adams, Lovell, Burlingham, Inc., 90 West St., New York
 Aiken, F. J., New Orleans, La.
 Black, Henry, 68 Broad St., New York
 Bogert, J. L., 165 Broadway, New York
 Chapman & Fisher, Philadelphia
 Cornell & Matthews, Philadelphia
 Cox & Stevens, 15 William St., New York
 Crandall Engineering Co., East Boston
 Dickie, D. W. & R. Z., San Francisco
 Donnelly, W. T., 17 Battery Place, New York
 Edwards Engineering Co., The, Philadelphia
 Esplen Sons & McNaught, Inc., 81 New St., New York
 Finkenaar, William M., 17 Battery Pl., New York
 Gardner & Co., Wm., 1 Broadway New York
 Granfield & Co., W. J., Philadelphia
 Harris, Leonard H., 111 Broadway, New York
 Hought, Robt. S., 17 State St., New York
 Hough, Edward S., San Francisco
 Isdale, M. G., 68 Broad St., New York
 Isherwood J. W., 17 Battery Place, New York
 Johnson, Warren, New Orleans
 Jordan, Alfred E., 17 Battery Place, New York
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Kindlund & Drake, 17 Battery Place, New York
 Laverie, Robt. H., 17 State St., New York
 Lennon, H. A., San Francisco
 Leslie Stevens Co., 120 Broadway, New York
 Lysholm, Inc., Henry, Philadelphia
 McClelland & Co., N. E., 2 Stone St., New York
 McKinlay, James, Portland, Ore.
 Mackenzie, J. H. B., 24 Stone St., New York
 Martin, Frank S., 12 Broadway, New York
 Mason & Wilson, 2 Stone St., New York
 Matthews, John B., San Francisco
 Millard & Bro., J. W., 17 State St., New York
 Nilson, Leonard J., Baltimore
 Peabody Engineering Corp., 331 Madison Av., New York,
 see p. 65
 Pommer, W. E., Milwaukee, Wis.
 Reed Engineering Co., Vancouver, Wash.
 Reid & Co., John, 30 Church St., New York
 Richardson, Jos. W., 11 Broadway, New York
 Row & Davis, Engineers, Inc., 90 West St., New York,
 see p. 45
 Scheel, K. H., Seattle, Wash.
 Scott & Surtees, 78 Broad St., New York
 Simpson, George, 17 Battery Place, New York
 Smith Bros., Buffalo
 Watts, J. Murray, Philadelphia
 Whittlesey & Whittlesey, 17 Battery Place, New York

ENGINES (See Anchor Engines

Diesel Engines
 Gasoline & Kerosene Engines
 Hoisting Engines
 Reciprocating Engines
 Semi-Diesel Engines
 Steering Engines
 Towing Engines)

ETHYL CHLORIDE

Clothel Refrigerating Co., 61 Broadway, New York, see
 p. 96

Cooper & Co., Chas., 194 Worth St., New York
 Denver Fire Clay Co., The, Denver, Col.
 Ford & Geirrine, San Francisco
 Franco-American Chemical Co., Carlstadt, N. Y.
 Fries Bros., 92 Reade St., New York
 Garrigues Co., Chas. F., 54 Wall St., New York
 Gebauer Chemical Co., Cleveland
 Hachmeister-Lind Chemical Co., Pittsburgh
 Lehn & Fink, 635 Greenwich St., New York
 Partola Manufacturing Co., 160 Second Av., New York
 Squibb & Sons, E. R., 80 Beekman St., New York

EVAPORATORS

Braun & Co., C. F., San Francisco
 Davidson Co., M. T., 154 Nassau St., New York
 Ford & Geirrine, San Francisco
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Kerr Machinery Corp., Detroit, Mich.
 Ross Heater & Mfg Co., Buffalo
 Row & Davis, Engineers, Inc., 90 West St., New York,
 see p. 45
 Schutte & Koerting Co., Philadelphia
 Wheeler Condenser & Engineering Co., Carteret, N. J.,
 see p. 23

EXPANDERS, Hose

Allen Fre Dept. Supply Co., Providence, R. I.
 Elkhart Bros. Manufacturing Co., Elkhart, Ind.
 Handlan-Buck Mfg Co., 212 N. 3d St., St. Louis, Mo.
 Larkin Manufacturing Co., Dayton, Ohio
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Morse & Sons Co., Andrew J., 221 High St., Boston
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 Richards & Gardner, Frank, 47 South St., New York
 Safety Fire Extinguisher Co., 291 Seventh Av., New York
 Tufts, Walter B., 94 John St., New York

EXPANDERS, Tube (See Also Boiler Tube Expanders)

Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Crerar, Adams & Co., Chicago
 Fairbanks Co., 416 Broome St., New York
 Foessler Manufacturing Co., Moberly, Mo.
 Handlan-Buck Mfg Co., 212 N. 3d St., St. Louis, Mo.
 Helwig Manufacturing Co., St. Paul, Minn.
 Henderer's Sons, A. L., Wilmington, Del.
 King Mfg. Co., A. R., (Sectional Type), Kingston, N. Y.
 Lovejoy Tool Works, Chicago
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Richards & Gardner, Frank, 47 South St., New York
 Scully Steel & Iron Co., Chicago
 Strelinger & Co., Chas. A., Detroit, Mich.
 Weideke & Co., Dayton, Ohio

EXPANSION BOLTS (See Bolts, Expansion)**EXPANSION JOINTS**

Alberger Pump & Condenser Co., 90 West St., New York
 Badger & Sons Co., E. B., Boston
 Braun & Co., C. F., San Francisco
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Lunkenheimer Co., Cincinnati
 Pittsburgh Valve Foundry & Const. Co., Pittsburgh
 Powell Co., The Wm., Cincinnati
 Ross Heater & Mfg Co., Buffalo

EXTERMINATORS, Roaches, Rats, etc.

Bowman-Edson Co., M. R., 65 Dey St., New York
 Guarantee Exterminating Co., 400 Fifth Av., New York
 Midland Chem. Laboratories, Inc., Duluth, Minn.
 Modern Exterminating Co., Boston
 Roach Exterminating Co., 680 Fulton St., Brooklyn, N. Y.
 Sanozone Co., Philadelphia
 Stearno Electric Paste Co., Chicago
 Sterling Chemical Co., Cambridge, Mass.
 Talbot Manufacturing Co., Los Angeles
 Vandervoot Chemical Co., E. Orange, N. J.
 West Disinfecting Co., 411 Fifth Av., New York

STERLING-COOPER CO., NEW YORK

EXTINGUISHERS, Fire

Ajax Fire Engine Works, Brooklyn, N. Y.
 Badger Fire Extinguisher Co., 34 Portland St., Boston
 Buffalo Chemical Fire Extinguisher Co., Buffalo
 Castle, Inc., Jas. M., Lincoln Bldg., Philadelphia
 Croker Fire Prevention Const. Co., 1270 Bway., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Fire Detecting Wire Corp, 2 W. 45th St., New York, see
 p. 48

Fire Gun Manufacturing Co., 115 Fourth Av., New York
 Foamite Firefoam Co., 200 Fifth Av., New York, see p. 49
 General Manufacturing Co., St. Louis, Mo.
 Gilbert & Sons Brass Fdry Co., A., St. Louis, Mo.
 Harker Manufacturing Co., Cincinnati
 Huron Chemical Co., 51 Bergen St., Brooklyn, N. Y.
 Kidde & Co., Walter (Rich System), 90 West St., New
 York, see p. 47

Knight, Inc., Thos., Boston
 McFarland & Co., J. C., Chicago
 Mine Safety Appliance Co., Pittsburgh
 Morse & Son, Inc., A., Boston
 Presses Steel Tank Co., Milwaukee, Wis.
 Pyrene Manufacturing Co., Inc., 17 E. 49th St., New York
 Rowe & Son, Inc., A. C., 78 Reade St., New York
 Safety Fire Extinguisher Co., 291 Seventh Av., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 (See also *Ship Chandlers, Port Data Section*)

EYE BOLTS (See Bolts, Eye)**EYE PROTECTORS (See Goggles, Safety)****EYES, Screw, Boat, Steel**

Art Metal Works, Inc., Newark, N. J.
 Broadway Hardware Co., Newport, R. I.
 Brooks & Sons, M. S., Chester, Conn.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Eureka Co., 120 Broadway, New York
 Ford Pulley & Hardware Co., 25 W. 45th St., New York
 Hamblin & Russell Mfg Co., Worcester, Mass.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York

Mayer Co., J. C., Philadelphia
 Moran Bolt & Nut Co., St. Louis, Mo.
 Morgan Spring Co., Worcester, Mass.
 O'Leary & Son Co., A. J., 652 W. Lake St., Chicago
 Standard Player Hdw. Co., 512 W. 36th St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

EYES, Screw, Brass

Art Metal Works, Newark, N. J.
 Brooks & Sons, M. S., Chester, Pa.
 Duer & Son, John, Baltimore
 Ford Pulley & Hardware Co., 25 W. 45th St., New York
 Hamblin Manufacturing Co., Worcester, Mass.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York

Judd & Co., H. L., 87 Chambers St., New York
 Montgomery & Co., 105 Fulton St., New York
 Moran Bolt & Nut Co., St. Louis, Mo.
 Parker Wire Goods Co., Worcester, Mass.
 Russell Manufacturing Co., Naugatuck, Conn.
 Sargent & Co., 94 Centre St., New York
 Standard Player Hdw. Co., 512 W. 36th St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Turner & Stanton Co., Norwich, Conn.
 Woodruff & Sons Co., W. Mt. Carmel, Conn.

F**FACINGS, Charcoal**

Asbury Graphite Mills, 200 Fifth Av., New York
 Barrett Co., The, Barrett Bldg., Philadelphia
 Federal Foundry Supply Co., Cleveland
 Hill Brunner Fdry Supply Co., Cincinnati
 McCormack & Co., J. S., Pittsburgh
 Obermayer & Co., S., Cincinnati
 Pattern & Foundry Equip Corp, 132 Nassau St., New York
 Paxon & Co., J. W., Philadelphia

Pettinos, Geo. F., 50 Church St., New York
 Whitehead Bros. Co., 537 W. 27th St., New York

FACINGS, Mineral

Asbury Graphite Co., 200 Fifth Av., New York
 Barrett Co., The, Barrett Bldg., Philadelphia

FACINGS, Silica, Wash

Barrett Co., The, Barrett Bldg., Philadelphia

FAIR LEADERS

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100

Doud-MacFarlane Machinery Co., Tacoma, Wash.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Gragger & Co., Geo. B., Chicago

Main Iron Works, San Francisco

Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Wilcox, Crittenden & Co., Middletown, Conn.

FANS, Electric, Bulkhead, Deck & Overhead

Adams-Bagnall Electric Co., Cleveland
 Arnessen Electric Co., 109 Broad St., New York
 Bessill Co., The F., 226 Huron St., Toledo, Ohio
 Bodine Electric Co., Ohio & Oakley Blvd., Chicago
 Bunnell & Co., J. H., 32 Park Place, New York
 Central Electric Co., Chicago
 Century Electric Co., St. Louis, Mo.
 Colonial Fan & Motor Co., Warren, Ohio
 Cutler-Hammer Mfg Co., 50 Church St., New York, see
 p. 35

Dayton Fan & Motor Co., The, Dayton, Ohio
 Diehl Manufacturing Co., Elizabeth, N. J.
 Eck Dynamo & Motor Co., Belleville, N. J.
 Emerson Electric Manufacturing Co., St. Louis, Mo.
 Fullerton Electric Co., 15 W. 20th St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hall, C. O., 147 W. 35th St., New York
 Hamilton Beach Mfg Co., Racine, Wis.
 Ilg Electric Ventilation Co., 154 Whiting St., Chicago
 Kendrick & Davis, Lebanon, N. H.
 Killoch Co., David, 109 Broad St., New York
 Latham & Co., E. B., 550 Pearl St., New York
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Meade Electric Signal Co., Cleveland
 Nazel Electric Co., W. G., Toledo, Ohio
 Peerless Electric Co., Warren, Ohio
 Philadelphia Electric Co., 132 S. 11th St., Philadelphia
 Pittsburgh Electric & Machine Co., Pittsburgh
 Republic Electric Co., 422 So. Talman Av., Chicago
 Robbins & Myers Mfg Co., Springfield, Ohio
 Shaw Insulator Co., 5 Kirk Place, Newark, N. J.
 Sibley-Pitman Electric Corp, 190 Sixth Av., New York
 Sprague Electric Works, 527 W. 34th St., New York
 Tideman Electric Manufacturing Co., Menominee, Mich.
 Western Electric Co., 151 Fifth Av., New York
 Wetmore Savage Co., 76 Pearl St., Boston

FANS, Ventilating, Exhaust & Plenum

American Blower Co., Detroit, Mich.
 Champion Blower & Forge Co., Lancaster, Pa.
 Clarage Fan Co., Kalamazoo, Mich.
 Coppus Engineering Co., Worcester, Mass.
 De Laval Steam Turbine Co., Trenton, N. J., see pp.
 106 & 107

Diehl Manufacturing Co., Elizabeth, N. J.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Green Fuel Economizer Co., 95 Liberty St., New York
 New York Blower Co., Chicago
 Schutte & Koerting Co., Philadelphia
 Sterling Blower Co., Hartford, Conn.
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109

Terry Steam Turbine Co., The, Hartford, Conn., see p. 110
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wing Manufacturing Co., L. J., 352 W. 13th St., New York

FASTENERS, Patternmakers, Steel

Acme Steel Goods Co., 167 41st St., Brooklyn, N. Y.
 Art Metal Works, 7 Mulberry St., Newark, N. J.
 Broadway Hardware Co., Newport, R. I.

STERLING-COOPER CO., NEW YORK

Carr Fastener Co., Boston
 Cary Manufacturing Co., 126 Nassau St., Brooklyn, N. Y.
 Shanafelt Manufacturing Co., The, Canton, Ohio
 Standard Player Hardware Co., 512 W. 36th St., New York
 Tunnis & Clissold, Bound Brook, N. J.
 Wellman Patterson Supply Co., 444 E. 49th St., Cleveland

FEED PUMPS, Boiler (See Pumps, Subhead)**FEED WATER FILTERS (See Grease Extractors)****FEED WATER HEATERS**

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa.,
 see p. 100

Braun & Co., C. F., San Francisco
 Cramp & Sons Ship & Eng. Bldg. Co., The, Philadelphia
 Davidson Co., M. T. 154 Nassau St., New York
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Jenkins Co., V. S., Seattle, Wash.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Kerr Machinery Corp., Detroit, Mich.
 Main Iron Works, San Francisco
 Pratt & Cady Co., Inc., Hartford, Conn.
 Ross Heater & Manufacturing Co., Buffalo
 Row & Davis, Engineers, Inc., 90 West St., New York,
 see p. 45
 Schutte & Koerting Co., Philadelphia

FEED WATER REGULATORS (See Also Governors, Pump)

American Steam Gauge & Valve Mfg Co., Boston
 Chaplin-Fulton Mfg Co., Pittsburgh
 Globe-Anderson Valve Specialty Co., Pittsburgh
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Kieley & Mueller, 34 W. 13th St., New York
 Williams Gauge Co., The, Pittsburgh

FELT

Albany Felt Works, Albany, N. Y.
 American Felt Co., Boston
 Barrett Co., The, 17 Battery Pl., New York
 Booth Felt Co., Inc., 463 19th St., Brooklyn, N. Y.
 Carey Co., The Philip, Cincinnati
 Commonwealth Felt Co., Boston
 Federal Felting Co., Westerly, R. I.
 Felters Co., Inc., 103 Bedford St., Boston
 Western Felt Works, Chicago

FELT, Asbestos

Belmont Packing & Rubber Co., Philadelphia
 Carey Co., The Philip, Cincinnati
 Ehret Magnesia Manufacturing Co., Valley Forge, Pa.
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York
 Keasbey & Co., R. A., 445 West St., New York
 Keasbey & Mattison Co., Ambler, Pa.
 Paxson Co., Jos. W., 1021 N. Delaware Av., Philadelphia
 Strong Machinery & Supply Co., 21 Walker St., New York

FELT, Hair

Ehret Magnesia Mfg. Co., Valley Forge, Pa.
 Hard Manufacturing Co., Buffalo
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York
 Livesey, John R., 1933 Market St., Philadelphia
 Mikesell Bros. Co., Chicago
 Portland Stone Ware Co., Boston
 Union Fibre Co., Winona, Minn.
 Wallace & Gale, Baltimore
 Western Felt Works, Chicago

FENDERS, Ship & Boat

Atlantic-Pacific Mfg Co., 124 Atlantic Av., Brooklyn, N. Y.
 Carpenter & Co., Geo. B., 440 Hill St., Chicago
 De Grauw Aymar & Co., 34 South St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Farley & Co., Edw. P., Ry. Exch. Bldg., Chicago
 Fowl, Julius, 207 W. 18th St., New York
 Kahnweiler's Sons, David, 260 Front St., New York

O'Connell, Jas. J., Newport, R. I.
 Randall Co., A. L., 180 N. Wabash Av., Chicago
 Rattan Manufacturing Co., New Haven, Conn.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Upson-Walton Co., 1310 W. 11th St., Cleveland
 Weeks-Howe Emerson Co., 90 Market St., San Francisco

FENDERS, Ship, Spanish Cane

Atlantic & Pacific Manufacturing Co., 124 Atlantic Av.,
 Brooklyn, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Farley & Co., E. P., Railway Exchange Bldg., Chicago
 Fowl, Julius, 207 W. 18th St., New York
 Laughlin Co., The Thos., 143 Fore St., Portland, Me.
 Marine Mfg & Supply Co., 158 South St., New York
 Szel Import & Export Co., 393 Broadway, New York

FERRO-CHROMIUM

Browne, deCourcy, 120 Broadway, New York
 Lavino & Co., E. J., Philadelphia
 Leavitt & Co., C. W., 30 Church St., New York
 National Sales & Trading Co., Cleveland
 Walter-Wallingford & Co., Pittsburgh

FERRO-MANGANESE

Bethlehem Steel Co., Bethlehem, Pa.
 Columbia Smelt. & Refin. Wks, 365 West St., New York
 Lavino & Co., E. J., Bullitt Bldg., Philadelphia
 Leavitt & Co., C. W., 30 Church St., New York
 Marshall & Co., F. W., Penn. Bldg., Philadelphia
 Noble Electric Steel Co., 995 Market St., San Francisco
 North Atlantic Metal Corp., 29 Broadway, New York
 Richards & Co., Inc., 200 Causeway St., Boston
 Rogers, Brown & Co., Morris Bldg., Philadelphia
 Samuel, Frank, Harrison Bldg., Philadelphia
 Shimer & Co., Inc., Bullitt Bldg., Philadelphia
 Southern Manganese Corp., Anniston, Ala.

FERRO-SILICON

Electric Reduction Co., Washington, Pa.
 Lavino & Co., E. J., Bullitt Bldg., Philadelphia
 Marshall & Co., F. W., Penn. Bldg., Philadelphia
 North Atlantic Metal Co., 29 Broadway, New York
 Pennsylvania Smelting Co., Pittsburgh
 Pittsburgh Metallurgical Co., Niagara Falls, N. Y.
 Richards & Co., Inc., 200 Causeway St., Boston
 Rogers, Brown & Co., Morris Bldg., Philadelphia
 Samuel, Frank, Harrison Bldg., Philadelphia
 Shimer & Co., Inc., Bullitt Bldg., Philadelphia
 Southern Ferro Alloys Co., Chattanooga, Tenn.

FERRULES, Condenser Tube (See Condenser Tube Ferrules)**FERRULES, Rubber**

American Hard Rubber Co., 11 Mercer St., New York
 Belmont Packing & Rubber Co., 133 N 2d St., Philadelphia
 Bowers Rubber Works, 68 Sacramento St., San Francisco
 Canfield Co., H. V., Bridgeport, Conn.
 Cincinnati Rubber Co., Cincinnati
 Elkhart Rubber Works, Elkhart, Ind.
 Essex Rubber Co., Trenton, N. J.
 Federal Rubber Co., Cudahy, Wis.
 Manhattan Rubber Mfg Co., Passaic, N. J.
 Miller Rubber Co., Akron, Ohio
 Ohio Rubber Co., Cleveland
 Palmer Equipment Co., Chicago
 Plant Rubber & Asbestos Works, San Francisco

FIBRE, Insulating, Hard Sheet

Arnessen Electric Co., 109 Broad St., New York
 Blood Co., W. E., 217 Centre St., New York
 Central Electric Co., Chicago
 Continental Fibre Co., Newark, Del.
 Diamond State Fibre Co., Bridgeport, Pa.
 Fullerton Electric Co., 15 W. 20th St., New York
 Garton Co., The W. R., 15 S. Desplaines St., Chicago
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Manhattan Electric Supply Co., 17 Park Place, New York
 Meade Electric Signal Co., Cleveland
 Mica Insulator Co., 68 Church St., New York

Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Mitchell-Rand Manufacturing Co., 18 Vesey St., New York
 National Fibre & Insulation Co., 50 Church St., New York
 Peterson Co., Chas. J., 723 Fulton St., Chicago
 Rogers Fibre Co., 45 W. 16th St., New York
 Shaw Insulator Co., 5 Kirk Pl., Newark, N. J.
 Spaulding & Sons Co., J., 484 Broome St., New York
 Standard Fibre Co., Somerville, Mass.
 Wetmore-Savage Co., 76 Pearl St., Boston

FIDS, Cringle

Brombacker & Co., A. F., 31 Fulton St., New York
 Cutter & Woods Supply Co., Boston
 Galbraith & Son, C. C., 117 West St., New York
 Neptune Hardware Mfg Co., 80 Warren St., New York
 N. Y. Mallet & Handle Works, 743 E. 11th St., New York
 Walden Butler Co., Inc., 51 Jamaica Av., Brooklyn, N. Y.

FIDS, Hand

Campbell Mfg Co., Geo., 253 Broadway, New York
 Hellenberg Co., J. B., Coldwater, Mich.
 Neptune Hardware Mfg Co., 80 Warren St., New York
 N. Y. Mallet & Handle Works, 743 E. 11th St., New York
 Seib Bros., 96 Boyd Av., Jersey City, N. J.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 Wilcox, Crittenden & Co., Middletown, Conn.

FIGURES & LETTERS, Ships' Draft & Name

Chain Products Co., The, Cleveland
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

FILES, Cross Cut

Flat
 Half Round
 Knife
 Mill
 Round
 Square
 Tape
 3 Square

Barnet Co., G. & H., 1076 Frankfort Av., Philadelphia
 Brady, Inc., F. A., 30 Church St., New York
 Brombacher & Co., A. F., 29 Fulton St., New York
 Cameron & Byington, 143 Chambers St., New York
 Capital File Co., Hartford, Conn.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Chelsea File Works, Norwich, Conn.
 Chicago File & Rasp Co., Grand Haven, Mich.
 Colonial File Co., Flanean St., Naponite, Mass.
 Crerar, Adams & Co., Chicago
 Cutter & Woods Sup. Co., 68 Pearl St., Boston
 Dale Brewster Mach. Co., 54 Lafayette St., New York
 Davis Hunt Colister Hardware Co., Cleveland
 Dean & Robinson, 11 Warren St., New York
 Delta File Works, Frankfort, Philadelphia
 Dienst Co., Inc., A. P., Cor. 140th St., & 3d Av., New York
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 2 South St., New York
 Frank, Jr., Henry, 372 Huron St., New York
 General Machy & Supply Co., 302 Broadway, New York
 Grover File Co., Nashua, N. H.
 Handlan-Buck Mfg Co., St. Louis, Mo.
 Harris & Co., Samuel, Chicago
 Hays File Co., Detroit, Mich.
 Heller Bros. Co., Newark, N. J.
 Kurzon, Chas., 159 E. Houston St., New York
 Lutz File Co., 806 Broadway, Cincinnati
 McCarthy Drill & Tool Corp, 30 Church St., New York
 McClelland File Co., Wm., Cleveland
 Machinists' Supply Co., Pittsburgh
 Madden & Morrison File Co., Middletown, N. Y.
 Man Sherwood Supply Co., Cleveland
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Moore Bros., Jamestown, N. Y.
 Murcott & Campbell, 296 Union Av., Brooklyn, N. Y.
 Nicholson File Co., Providence, R. I.
 Oil Well Supply Co., 90 West St., New York
 Proctor Co., Inc., S. Eugene, 158 State St., Boston
 Pruden Hardware Co., W. E., 864 8th Av., New York

Shapleigh Hardware Co., St. Louis, Mo.
 Simonds Mfg Co., Fitchburg, Mass.
 Strelinger Co., Chas. A., Detroit, Mich.
 Sutton Vaughan Equipment Co., 261 Broadway, New York
 Walls Tool & Sup. Co., T. P., 25 Leonard St., New York
 Westphal File Co., Milwaukee, Wis.
 Whitaker Mfg Co., Chicago
 Whitman & Barnes Mfg Co., Akron, Ohio
FILES, Narrow Pillar
 Disston & Sons, Inc., Henry, Philadelphia
 Montgomery & Co., Inc., 105 Fulton St., New York
 Williams & Wells, 248 Fulton St., New York

FILING CABINETS (See Furniture, Metal, Lockers)**FILTER-COOLERS****FILTRINE****FILTERS, Feed Water (See Grease Extractors)****FILTERS, Oil (See Oil Filters)****FILTERS, Water**

Allen Filter Co., 25 S. Clair St., Toledo, Ohio
 Baker, Hamilton & Pacific Co., 7th & Townsend Sts.,
 San Francisco
 Bramhall & Deane, 263 W. 36th St., New York
 Cuyler & Mohler, 611 William St., Baltimore
 Filtrine Mfg Co., 53 Lexington Av., Brooklyn, N. Y.,
 see p. 46
 Findlay Manufacturing Co., Inc., Robert, 224 Fifth Av.,
 Hungerford & Terry, Inc. Penn. Bldg., Philadelphia
 International Filter Co., 38 S. Dearborn St., Chicago
 Koven & Bro., L. O., 154 Ogden Av., Jersey City, N. J.
 Lancaster Iron Works, Inc., Lancaster, Pa.
 National Marine Lamp Co., Forestville, Conn.
 Permutit Co., 440 Fourth Av., New York
 Reliance Metal Spin. & Stamp. Co., 160 John St., Bkn, N. Y.
 Scaife & Sons Co., Wm. B., Pittsburgh
 Stearnes Co., 1523 S. Michigan Av., Chicago
 Western Tinware Co., 1308 N. 16th St., St. Louis, Mo.
 Wood Manufacturing Co., Jno., Conshohocken, Pa.

FILTERING MEDIA

Celite Products Co., 11 Broadway, New York
 McCormick Co., J. S., Pittsburgh
 Newman Charcoal Co., The E. B., 548 W. 25th St., New
 York
 Wright & Co., T. B., Berlin, N. J.

**FIR, Douglas, Shipstock
Sparstock**

Billings Co., Geo. E., San Francisco
 Burritt, A. W., Bridgeport, Conn.
 Central Timber Export Co., Inc., 115 Broadway, New York
 Cooney, Eckstein & Co., 302 Broadway, New York
 Dennis & Co., Thos. S., Kansas City, Mo.
 Douglas, Geo., 317-21 West St., New York
 Dutton Lumber Corp., A. C., G. C. T., New York
 East Side Mill & Lumber Co., Portland, Ore.
 Elias & Bro., G., 965 Elk St., Buffalo
 Gill & Son, Wm. D., Baltimore
 Kalt Lumber Co., 320 E. 64th St., New York
 Leary & Reid, Java & Provost Sts., Brooklyn, N. Y.
 Lewis Lumber Co., E. H., 18 Broadway, New York
 McClave & Son, E. W., Harrison, N. J.
 Maloney & Co., J. A., 1182 Broadway, New York
 National Timber Co., Mobile, Ala.
 North Bend Lumber Co., Edgewick, Wash.
 Saari-Tully Lumber Co., Portland, Ore.
 Sax Lumber Co., Alfred R., 143 W. 33d St., New York
 Stevens-Eaton Co., 1 Madison Av., New York
 Sullivan Lumber Co., Portland, Ore.
 Trexler Lumber Co., Kearny, N. J.
 Turnbull Lumber Co., J. W., Philadelphia
 Van Arsdale-Harris Lumber Co., San Francisco
 Woodstock Lumber Co., The, 131 State St., Boston

FIRE ALARM SYSTEMS (See Also Alarms)

Cory & Son, Inc., Chas., 183 Varick St., New York
 Fire Detecting Wire Corp, 2 W. 45th St., New York, see
 p. 48
 Elmer & Co., J. O., New Orleans, La.
 Henschel & Co., Inc., C. J., 111 Dobbin St., Bklyn., N. Y.

STERLING-COOPER CO., NEW YORK

Holtzer-Cabot Electric Co., The, 125 Amory St., Boston
Horne Manufacturing Co., Mercer & Colgate Sts., Jersey City, N. J.

Kidde & Co., Walter (Rich System), 90 West St., New York, see p. 47

Mount Fire Alarm Co., The, 333 Fourth Av., New York
Polk, R. C., Perkins Bldg., Tacoma, Wash.

FIRE BRICK (See Bricks, Fire)

FIRE CLAY (See Cement Refractory, Also Bricks, Fire)

FIRE EXTINGUISHERS (See Also Extinguishers, Fire)

Fire Detecting Wire Corp., 2 W. 45th St., New York, see p. 48

Foamite Firefoam Co., 200 Fifth Av., New York, see p. 49
Kidde & Co., Walter (Rich System), 90 West St., New York, see p. 47

FIRE TIMING APPARATUS (See Time Firing Apparatus)

FIRE TOOLS, Ash Hoes

Devils Claws

Pricker Bars

Slice Bars

Babcock & Wilcox Co., The, 85 Liberty St., New York, See p. 7

Baezley Iron Wks, Jno. T., Philadelphia

Fairbanks Co., 416 Broome St., New York

Manning, Maxwell & Moore, 119 W. 40th St., New York

Sees & Faber Co., Philadelphia

Standard Supply Equipment Co., Philadelphia

Willoughby, A. B., Philadelphia

FIRE TUBE BOILERS (See Boilers, Scotch)

FITTINGS, Gage, Glass

American Steam Gauge & Valve Co., Boston

Jerguson Gage & Valve Co., Somerville, Boston

Lunkenheimer Co., Cincinnati

Montgomery & Co., 105 Fulton St., New York

Penberthy Injector Co., 360 Holden Av., Detroit, Mich.

Powell Co., The Wm., Cincinnati

Rogers & Co., H. A., 87 Walker St., New York

Williams & Wells, 252 Fulton St., New York

FITTINGS, Pipe (See Pipe Fittings & Flanges)

FLAGS & PENNANTS

American Flag Co., 71 Mercer St., New York

Annin & Co., 99 Fulton St., New York, see p. 50

Borough Decorating Co., 43 Park Row, New York

Curtin Corporation, John, 73 Front St., New York

De Grauw Aymar & Co., 34 South St., New York

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Granger & Co., Geo. B., Chicago

Humphrey's Sons, R. A., Philadelphia

International Flag Co., Jamestown, N. Y.

Spearing & Co., New Orleans, La.

Weeks-Howe Emerson Co., 90 Market St., San Francisco
(See also Ship Chandlers, Port Data Section)

FLANGES, Pipe (See Pipe Fittings & Flanges)

FLANGING MACHINES (See Also Pipe Expanding and Flanging Machines)

Lovekin Pipe Expanding & Flanging Co., 423 Chestnut St., Philadelphia, see p. 51

FLATTERS, Blacksmiths

Anderson Supply Co., N. H., Detroit, Mich.

Brombacker & Co., A. F., 31 Fulton St., New York

Chandler & Farquhar, 32 Federal St., Boston

Fairbanks Co., 416 Broome St., New York

Frank, Jr., Henry, 374 Hudson St., New York

French, Inc., H. P., 320 Broadway, New York

General Machine & Supply Co., 302 Broadway, New York

Heller Bros. Co., 879 Mt. Prospect Av., Newark, N. J.

Iron City Tool Works, Pittsburgh

Machinists' Supply Co., Pittsburgh

Manning, Maxwell & Moore, 119 W. 40th St., New York

Scully Steel & Iron Co., Chicago

Vaughn & Bushnell, 2130 Carroll Av., Chicago

Whitaker Manufacturing Co., 409 S. Green St., Chicago

FLOATING CRANES (See Cranes, Floating)

FLOATING DOCKS (See Shipbuilding Section)

FLOODLIGHTS

Adams & Westlake Co., Chicago

Arnessen Electric Co., 109 Broad St., New York

Bissell Co., The F., Toledo, Ohio

Beardslee Chandelier Mfg Co., Chicago

Central Electric Co., Chicago

Crouse-Hinds Co., Syracuse, N. Y.

Electric Service Supplies Co., Philadelphia

Franklin Electric Mfg Co., Hartford, Conn.

Fullerton Electric Co., 15 West 20th St., New York

General Electric Co., Schenectady, N. Y., see pp. 36-41

Grether Fire Equipment Co., Dayton, Ohio

Herzog Electric & Engrg Co., San Francisco

Killoch Co., David, 57 Murray St., New York

Latham & Co., E. B., 550 Pearl St., New York

Livingston & Co., Inc., J., 70 E. 45th St., New York

Lovell & Co., F. H., Arlington, N. J.

Manhattan Electrical Sup. Co., 17 Park Place, New York

National X-Ray Reflection Co., 235 W. Jackson Blvd., Chicago

Nazel Electric Co., W. G., Toledo, Ohio

Nepage, McKinney, Portland, Ore.

Philadelphia Elec. Co., The, 132 So. 11th St., Philadelphia

Sibley Pitman Electric Corp., 190 6th Av., New York

Wakefield Brass Co., F. W., Vermillion, Ohio

Western Electric Co., 151 Fifth Av., New York

Wetmore Savage Co., 76 Pearl St., Boston

Wheeler Reflector Co., Boston

FLOOR GRATINGS

American Pressed Steel Co., Philadelphia

Irving Iron Works, Long Island City, N. Y.

FLOORING, Composition, Sanitary, Fireproof

Linotol Flooring Co., 15 Whitehall St., New York, see p. 31

(See also Composition Decking & Flooring)

FLOW INDICATORS, WATER & OIL

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

FLUX, Galvanizing

Empire Metal Co., Syracuse, N. Y.

United American Metal Corp., 196 Diamond St., Brooklyn, N. Y.

FOG HORNS

Cory & Son, Inc., Chas., King & Varick Sts., New York

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Hand & Sons Co., John E., Haddonfield, N. J.

FORGES

Anthony Co., The, 9 Jackson Av., L. I. C., New York

Baird Pneumatic Tool Co., Kansas City, Mo.

Baker Hamilton & Pacific Co., 700 Seventh Av., San Francisco

Bausch Machine Tool Co., 119 W. 40th St., New York

Bradley & Son, Inc., C. C., Syracuse, N. Y.

Buffalo Forge Co., 490 Broadway, Buffalo

Champion Blower & Forge Co., Lancaster, Pa.

Crerar, Adams & Co., 239 E. Erie St., Chicago

Fairbanks Co., 416 Broome St., New York

Lovejoy Tool Works, 325 W. Ohio St., Chicago

Mahr Manufacturing Co., Minneapolis, Minn.

Mirco Fuel Oil Equipment Co., Lancaster, Pa.

Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108 & 109

Wayne Oil Tank & Pump Co., Fort Wayne, Ind.

FORGES, Blacksmith, Steel

Best, W. N., 11 Broadway, New York

Buffalo Forge Co., Buffalo

Harvey & Harvey, Augusta, Me.

Hauck Manufacturing Co., 126 10th St., Brooklyn, N. Y.

Lovejoy Tool Works, Chicago

Macleod Company, Cincinnati

STERLING-COOPER CO., NEW YORK

Manning, Maxwell & Moore, 119 W. 40th St., New York
 Merrill Bros., Maspeth, N. Y.
 Silver Manufacturing Co., Salem, Ohio
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109
 Tate-Jones & Co., Inc., Pittsburgh

FORGES, Rivet Heating, Portable

American Car & Foundry Co., 165 Broadway, New York,
 see p. 99

Baird Pneumatic Tool Co., Kansas City, Mo.
 Beach-Russ Co., 220 Broadway, New York
 Buffalo Forge Co., Buffalo
 Champion Blower & Forge Co., Lancaster, Pa.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Hauck Manufacturing Co., 126 10th St., Brooklyn, N. Y.
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Macleod Co., 2225 Bogen St., Cincinnati
 Mahr Manufacturing Co., Minneapolis, Minn.
 Manitowoc Shipbuilding Co., Manitowoc, Wis.
 Monarch Engrg & Mfg Co., American Bldg., Baltimore
 Rix Compressed Air & Drill Co., Inc., 505 Howard St.,
 San Francisco, see p. 1
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109

FORGINGS, Bronze

American Manganese Bronze Co., Holmesburg, Philadel-
 phia, see p. 71
 Camden Forge Co., Camden, N. J.
 Columbian Bronze Corp, 522 Fifth Av., New York, see
 p. 72
 Mueller Metals Co., Port Huron, Mich.
 Phosphor & Bronze Smelt. Co., 2200 Washington Av.,
 Philadelphia

FORGINGS, Steel

Allis-Chalmers Mfg Co., Milwaukee, Wis.
 American Forge & Machine Co., Canton, Ohio
 Anniston Steel Co., Anniston, Ala.
 Apex Steel Corp., 50 Church St., New York
 Ashman & Son Co., S. A., 2300 Tioga St., Philadelphia
 Atlas Forgings Co., 2515 S. Artesian St., Chicago
 Bacon & Mattheson Forge Co., Seattle, Wash.
 Bay City Forge Co., Erie, Pa.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Bethlehem Steel Corp. Bethlehem, Pa.
 Bridgeport Steel Co., Bridgeport, Conn.
 Butler & Co., Thomas, 23 Medford St., Boston
 Camden Forge Co., Camden, N. J.
 Carbon Steel Co., Pittsburgh
 Carnegie Steel Co., Pittsburgh
 Crowley Co., John A., 120 Liberty St., New York
 Crucible Steel Forge Co., Cleveland
 Cumberland Steel Co., Cumberland, Md.
 Delaney Forge & Iron Co., Inc., 300 Perry St., Buffalo
 Duke Steel Co., Inc., 191 Pearl St., New York
 Erie Forge Co., Erie, Pa.
 Forrest Forge Co., Edwin, 129 Fremont St., San Francisco
 Finkl & Sons Co., A., Chicago
 General Steel Co., Milwaukee, Wis.
 Hammonds Co., R. R., Widener Bldg., Philadelphia
 Hawkridge Bros. Co., 303 Congress St., Boston
 Hendy Iron Works, Joshua, San Francisco
 Heppenstall Forge & Knife Co., Pittsburgh
 Horsburgh Forge Co., Cleveland
 Imperial Drop Forge Co., Indianapolis, Ind.
 Joliet Forge Co., Joliet, Ill.
 Llewellyn Iron Works, Los Angeles, Cal.
 Mesta Machine Co., Pittsburgh
 Midvale Steel & Ordnance Co., Philadelphia
 Moffatt & Co., Frank D., 200 Fifth Av., New York
 Nelson, Lodge & Snyder, Widener Bldg., Philadelphia
 Norfolk Hyde & Metal Co., Inc., Norfolk, Va.
 Oliver Iron & Steel Co., Pittsburgh
 Oshkosh Manufacturing Co., Oshkosh, Wis.
 Page-Storms Drop Forge Co., Chicopee Falls, Mass.
 Pennington & Sons, Inc., Geo. W., San Francisco
 Pennsylvania Forge Co., Bridesburg, Philadelphia

Philadelphia Steel & Iron Co., Philadelphia
 Pittsburgh Forge & Iron Co., Pittsburgh
 Pollak Steel Co., Cincinnati
 Read-Rittenhouse Co., Philadelphia
 Reading Iron Co., Reading, Pa.
 Sharon Iron & Metal Co., Sharon, Pa.
 Standard Forgings Co., Chicago
 Tacony Steel Co., Franklin Trust Bldg, Philadelphia,
 see p. 19
 Tindel-Morris Co., Eddystone, Pa.
 Titusville Forge Co., Titusville, Pa.
 Tribble Steel Co., H. N., Pittsburgh
 United Alloy Steel Corp, Canton, Ohio
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wilkoff Co., Youngstown, Ohio

FORGINGS, Steel, Machinery, Heavy & Light

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Bethlehem Steel Co., Bethlehem, Pa.
 Cambria Steel Co., 165 Broadway, New York
 Camden Forge Co., Camden, N. J.
 Cramp & Sons, Ship. & Engine Co., Wm., Philadelphia
 Erie Forge Co., Erie, Pa.
 Forrest Forge Co., Edwin, San Francisco
 Heppenstall Forge & Knife Co., Pittsburgh
 Horsburgh Forge Co., The, Cleveland
 Llewellyn Iron Works, San Francisco
 Mesta Machine Co., Pittsburgh
 Midvale Steel & Ordnance Co., Philadelphia
 Morgan Engineering Co., Jersey City, N. J.
 Pacific Construction & Engineering Co., Seattle, Wash.
 Pennington Sons, Inc., Geo. W., San Francisco
 Pollak Steel Co., The, Cincinnati
 Skinner & Eddy Corp, Seattle, Wash.
 Standard Forgings Co., Chicago
 Tacony Steel Co., Franklin Trust Bldg, Philadelphia,
 see p. 19
 Tickle Engineering Wks, A., 26 Delevan St., Bklyn., N. Y.
 Tindel-Morris Co., Eddystone, Pa.
 Titusville Forge Co., Titusville, Pa.
 Todd Shipyards Corp, 15 Whitehall St., New York
 Vulcan Iron Works, Inc., Jersey City, N. J.

FORMALDEHYDE SOLUTION

Albany Chemical Co., Albany, N. Y.
 Baker Chemical Co., J. T., Philipsburg, N. J.
 Carbon Dioxide & Magnesia Co., No. 29th & Montgomery
 Av., Philadelphia
 Cleveland Cliffs Iron Co., Cleveland
 Eimer & Amend, 211 3d Av., New York
 Garrigues Co., Chas. F., 54 Wall St., New York
 Hachmeister-Lind Chemical Co., Pittsburgh
 Hexter Stewart Corp, Cleveland
 Lehn & Fink, 635 Greenwich St., New York
 McKesson & Robbins, 91 Fulton St., New York

FOUNDRY EQUIPMENT

Adams Co., Dubuque, Iowa
 American Blower Co., Detroit, Mich.
 Anderson Bros. Manufacturing Co., Rockford, Ill.
 Anthony Co., The, Long Island City, N. Y.
 Eccles & Smith, San Francisco
 Pawling & Harnishfeger, Milwaukee, Wis.
 Paxon Co., J. W., Philadelphia
 Pittsburgh Electric Furnace Corp, Pittsburgh
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109

Whiting Foundry Equipment Co., Harvey, Ill.
 Woodison Co., The E. J., Detroit, Mich.

FOUNDRY FACINGS (See Facings, Charcoal, etc.)

FOUNDRY FLASKS

Adams Co., The, Dubuque, Iowa
 Diamond Clamp & Flask Co., Richmond, Ind.
 Sterling Wheelbarrow Co., Milwaukee, Wis.
 (See also Foundry Equipment)

FOUNTAINS, Drinking

Clothel Refrigerating Co., 61 Broadway, New York, see
 p. 96
 Clow & Sons, James B., 2328 So. Western Av., Chicago
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

DuBois Co., F. N., 247 9th Av., New York
 Ebinger Sanitary Mfg Co., D. A., Columbus, Ohio
 Filtrine Mfg Co., 53 Lexington Av., Brooklyn, N. Y.,
 see p. 46

Manufacturers' Equip. & Eng. Co., Framingham, Mass.
 Mott Iron Works, J. L., 18 Fifth Av., New York
 Peck Bros. Co., 127 Chestnut St., New Haven, Conn.
 Puro Sanitary Drinking Fountain Co., Haydonville, Mass.
 Safety First Supply Co., Pittsburgh
 Sands & Son Co., A. B., 20 Vesey St., New York
 Taylor Co., Halsey, W., Warren, Ohio
 Wheaton Brass Works, A. W., Newark, N. J.

FUEL OIL

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
*(Also see Port Data Section. Under each port are shown
 all companies that supply fuel oil in that port.)*

FUEL OIL ATOMIZERS (See Atomizers)

FUEL OIL BURNERS (See Atomizers, Also See Air Registers)

FUEL OIL HEATERS (See Oil Heaters)

FULLERS, Bottom & Top, Blacksmith

Anderson Supply Co., N. H., Detroit, Mich.
 Brombacker & Co., A. F., 31 Fulton St., New York
 Chandler & Farquhar, 32 Federal St., Boston
 Cutter Wood Supply Co., 68 Pearl St., Boston
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 2 South St., New York
 Frank, Jr., Henry, 37 Hudson St., New York
 French Co., Inc., H. P., 320 Broadway, New York
 Graham & Co., John H., 113 Chambers St., New York
 Hammacher, Schlemmer & Co., 4th Av. & 13th St., New York

Handlan-Buck Mfg Co., 212 No. 3d St., St. Louis, Mo.

Harris & Co., Samuel, 114 No. Clinton St., Chicago

Heller Bros., Co., Newark, N. J.

Iron City Tool Works, Pittsburgh

Kemp Machinery Co., Baltimore

Machinists' Supply Co., Pittsburgh

Manning, Maxwell & Moore, 119 W. 40th St., New York

Stanley Rule & Level Co., The, New Britain, Conn.

Strelinger & Co., Chas., Detroit, Mich.

Warren Tool & Forge Co., Warren, Ohio

FURNACE, Bridge Walls, Side Walls, Arches, etc.

Boston Engineering Co., Boston
 Flint Mixture Fire Brick Co., Long Island City, N. Y.
 Forbes Fdry & Iron Works, The John, Jersey City, N. J.
 Jenkins Co., V. S., Seattle, Wash.
 Jointless Fire Brick Co., 1130 Clay St., Chicago
 Thomas Grate Bar Co., Birmingham, Ala.
 Wager Furnace Bridge Wall Co., 85 Liberty St., New York
(See also Baffles, Boiler)

FURNACES, Angle

Bausch Machine Tool Co., 119 W. 40th St., New York
 Electric Furnace Construction Co., Philadelphia
 Industrial Furnace Corp, Boston
 Kenworthy, Inc., Chas. F., Waterbury, Conn.
 Mirco Fuel Oil Equipment Co., Lancaster, Pa.
 Rockwell Co., W. S., 50 Church St., New York
 Tate-Jones & Co., Inc., Pittsburgh

FURNACES, Annealing & Tempering

American Incandescent Heat Co., Boston
 Anthony Co., The, Long Island City, N. Y.
 Best, Inc., W. N., 11 Broadway, New York
 Economy Furnace Co., Chicopee, Mass.
 Fuller Engineering Co., Allentown, Pa.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Mirco Fuel Oil & Equipment Co., Lancaster, Pa.
 Rockwell Co., W. S., 50 Church St., New York
 Standard Fuel Engineering Co., Detroit, Mich.

FURNACES, Boiler

American Spiral Pipe Works, Chicago
 Continental Iron Wks, The, West & Calyer Sts., Bklyn., N. Y.

FURNACES, Charcoal

Bernz, Otto, 27 Ashland St., Newark, N. J.
 Brombacker & Co., A. F., 29 Fulton St., New York

Carel, Chas. W., Trenton, N. J.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Flint & Chester, 237 Lafayette St., New York
 Frank, Jr., Henry, 372 Hudson St., New York
 Garrison Bros. Mach. Wks, 109 W. 13th St., New York
 Littlefield Bros., 453 E. Pearl St., Cincinnati
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Montgomery & Co., Inc., 105 Fulton St., New York
 Niagara Machine Tool Co., 639 Northumberland Av., Buffalo
 Peck-Stow-Wilcox, 46 Broadway, New York
 Phillips & Buttorff Mfg Co., 217 Third Av., Nashville, Tenn.
 Shapleigh Hardware Co., St. Louis, Mo.
 Tufts, Walter B., 94 John St., New York

FURNACES, Heat Treating, Electric

Electric Furnace Co., The, Alliance, Ohio
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hoskins Manufacturing Co., Detroit, Mich.

FURNACES, Melting, Non-Ferrous Metals

Anthony Co., The, Long Island City, N. Y.
 Booth Electric Furnace Co., Chicago
 Fiske Iron Works, J. W., 78 Park Place, New York
 Focht Sons, Geo., Hoboken, N. J.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gilbert & Barker Manufacturing Co., 50 Bway., New York
 Improved Appliance Co., 455 Kent Av., Brooklyn, N. Y.
 Pittsburgh Electric Furnace Corp., Pittsburgh
 Quigley Furnace & Fdry Co., 26 Cortlandt St., New York

FURNACES, Plate (See Furnaces, Angle)

FURNITURE, Metal

Art Metal Construction Co., Newark, N. J.
 Baker Vawter Co., 350 Broadway, New York
 Berger Manufacturing Co., 154 11th Av., New York
 Canton Art Metal Co., 200 Fifth Av., New York
 Economy Drawing Table Co., Toledo, Ohio
 Edwards Co., O. M., 346 Broadway, New York
 Equipment Supply Co., 346 Broadway, New York
 Ideal Metallic Furniture Co., Detroit, Mich.
 Keyless Lock Co., Indianapolis, Ind.
 Metalcraft Co., Cleveland
 Metallograph Corp, G. C. T., New York
 Mosler Safe Co., 373 Broadway, New York
 Steel Equipment Corp, 25 W. 45th St., New York
 Toledo Metal Furniture Co., Toledo, Ohio
 Universal Fixture Corp, 135 W. 23d St., New York

FURNITURE, Metal (Lockers & Cabinets)

Amberg File & Index Co., 79 Duane St., New York
 Armor Clad Manufacturing Co., Canton, Ohio
 Art Metal Construction Co., 34 Clinton St., Newark, N. J.
 Beltz, Frank S., Hammond, Ill.
 Bergen Metal Manufacturing Co., The, New York
 Berger Manufacturing Co., Canton, Ohio
 Bernstein Manufacturing Co., Philadelphia
 Bridgeport Metal Goods Mfg Co., The, Bridgeport, Conn.
 Canton Art Metal Co., Canton, Ohio
 Canton Steel Ceiling Co., 497 West St., New York
 Cary Safe Co., Buffalo
 Chicago Wire Chair Co., No. La Salle St., Chicago
 Crown Metal Construction Co., Jamestown, N. Y.
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 Darby & Sons, Edward, 233 Arch St., Philadelphia
 Dougherty & Co., H. D., 171 Indiana Av., Philadelphia
 Durand Steel Locker Co., 76 West Monroe St., Chicago
 Federal Steel Foundry Co., 4545 Homer St., Chicago
 Hamilton Manufacturing Co., Two Rivers, Wis.
 Hart & Hutchinson Co., The, New Britain, Conn.
 Interior Metal Co., Jamestown, N. Y.
 Knapp Bros., Chicago
 Meilink Manufacturing Co., Toledo, Ohio
 Ohio Sheet Metal Co., Canton, Ohio
 Pittsburgh-Hickson Co., Butler, Pa.
 Solar Metal Products Co., Inc., Columbus, Ohio
 Smith & Davis Co., St. Louis, Mo.
 Steel Equipment Corp, Avenel, N. J.
 Watson Manufacturing Co., Jamestown, N. Y.
 York Safe & Lock Co., 55 Maiden Lane, New York

FUSE CLIPS & BACKINGS

Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Bryant Electric Co., Bridgeport, Conn.

STERLING-COOPER CO., NEW YORK

Central Electric Co., Chicago
 Chase Shawmut Co., Newburyport, Mass.
 Chicago Fuse Manufacturing Co., Chicago
 Condit Electrical Mfg Co., Boston
 Consolidated Car Heater Co., Albany, N. Y.
 Cook Co., Frank B., Chicago
 Economy Fuse & Mfg Co., Kenzie & Orleans St., Chicago
 Electric Safeguard Co., Inc., 60 Shipman St., Newark, N. J.
 Herzog Electric & Engr. Co., San Francisco
 Johns-Pratt Co., The, Hartford, Conn.
 Latham & Co., E. B., 550 Pearl St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Ostrander & Co., W. R., 371 Broadway, New York
 Stanley & Patterson, 23 Murray St., New York
 White Mfg Co., J. H., 111 N. Third St., Brooklyn, N. Y.
 Wurbach Electric Mfg Co., Wm., St. Louis, Mo.

FUSE ELEMENTS, Regular & Midget Type

Chicago Fuse Manufacturing Co., Chicago
 Commercial Enclosed Fuse Co., Hoboken, N. J.
 Economy Fuse & Manufacturing Co., Kinzie St., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Electric & Engrg Co., San Francisco
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Monarch Refillable Fuse Co., Buffalo
 Pittsburgh Electric & Machine Co., Pittsburgh
 Western Electric Co., 151 Fifth Av., New York

FUSES, Enclosed Cartridge Type Glass Tube Type Link Type Plug Type

Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Bussmann Mfg Co., 3819 N. 23d St., St. Louis, Mo.
 Central Electric Co., Chicago
 Chase Shawmut Co., Newburyport, Mass.
 Chicago Fuse Manufacturing Co., Chicago
 Commercial Enclosed Fuse Co., Hoboken, N. J.
 Consolidated Car Heater Co., Albany, N. Y.
 Economy Fuse & Manufacturing Co., Kinzie St., Chicago
 Empire Engrg & Supply Co., 1 Dominick St., New York
 Federal Electric Signal System, Desplaines St., Chicago
 Fullerton Electric Co., 15 W. 20th St., New York
 Garton Co., The W. M., 15 Desplaines St., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Electric & Engrg Co., San Francisco
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York
 Killark Electric Mfg Co., 117 West St., New York
 Killoch Co., David, 57 Murray St., New York
 Latham & Co., E. B., 550 Pearl St., New York
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Monarch Refillable Fuse Co., Buffalo
 Mount Vernon Co., Mt. Vernon, New York
 Philadelphia Electric Co., The, 132 S. 11th St., Philadelphia
 Pittsburgh Electric & Machine Co., Pittsburgh
 Sibley-Pitnam Electric Corp., 19 W. 36th St., New York
 Stanley & Patterson, 23 Murray St., New York
 Triangle Conduit Co., Inc., 52 Columbia Hts., Bklyn., N. Y.
 Union Electric Co., Trenton, N. J.
 Van Anden, Frank, 50 Church St., New York
 Western Electric Co., 151 Fifth Av., New York
 Wetmore-Savage Co., 76 Pearl St., Boston

FUSIBLE PLUGS, Boiler

American Injector Co., Detroit, Mich.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 D. & W. Fuse Co., Providence, R. I.
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Hills-McCanna Co., 2025 Elston St., Chicago
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Lunkenheimer Co., Cincinnati
 Oregon Brass Works, Portland, Ore.
 Richardson Bros. Co., The Edro, Baltimore
 Sherwood Manufacturing Co., Buffalo
 Williams Valve Co., D. T., Cincinnati

G

GAGE COCKS

American Steam Gauge & Valve Mfg Co., Boston
 Chaplin-Fulton Mfg Co., The, Pittsburgh
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Marwedel, C. W., San Francisco

GAGE GLASSES, Boiler

Beaton & Cadwell Mfg Co., 234 Water St., New York
 Buda Co., Chicago
 Chesterton Co., A. W., Boston
 Cuyler & Mohler, Baltimore
 Diamond Specialty & Supply Co., Philadelphia
 Durabla Manufacturing Co., 114 Liberty St., New York
 Durand-Keering Glass Co., Inc., Vineland, N. J.
 Federal Huber Co., Chicago
 German-American Glass Co., Philadelphia
 Hanovia Chemical Mfg Co., Newark, N. J.
 Huyette Co., Paul B., Philadelphia
 Jerguson Gage & Valve Co., Boston
 Kelley & Jones Co., Greensburgh, Pa.
 Lovell & Co., F. H., Arlington, N. J.
 Macbeth Evans Glass Co., 19 W. 44th St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Marwedel, C. W., San Francisco
 Nathan Manufacturing Co., Lawrence, L. I.
 Northwestern Heating & Contracting Co., Erie, Pa.
 Precision Instrument Co., West Detroit, Mich.
 Rogers Co., H. A., 87 Walker St., New York
 Sanville, Chas. P., Philadelphia
 Schaeffer & Budenberg Mfg Co., 84 Bway., Bklyn., N. Y.
 Simmons Co., John, 110 Centre St., New York
 Star Brass Mfg Co., 53 Oliver St., Boston
 Walworth Manufacturing Co., Boston
 Wiltbonco Manufacturing Co., Boston

GAGE GLASSES, Reflex (Klinger)

Corning Glass Co., Corning, N. Y.
 Diamond Spec'ly & Sup. Co., Harrison Bldg., Philadelphia
 German American Glass Co., Philadelphia
 Jerguson Gage & Valve Co., 358 Atlantic Av., Boston
 Macbeth Evans Glass Co., 19 W. 44th St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Nathan Manufacturing Co., Lawrence, L. I.
 Van Kokeritz & Co., 114 Liberty St., New York
 Wiltbonco Manufacturing Co., 10 P. O. Sq., Boston

GAGE TESTING OUTFITS, Weight Type

American Steam Gauge & Valve Mfg Co., Boston
 Ashton Valve Co., The, 161 First St., Cambridge, 41, Mass., see p. 111
 Bristol Co., Waterbury, Conn.
 Foxboro Co., Inc., 50 Church St., New York
 Fox Meter Co., 2545 N. Broad St., Philadelphia
 Geier & Bluhm, Troy, N. Y.
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Schaeffer & Budenberg Mfg Co., 84 Bdw., Bklyn., N. Y.
 Scientific Utilities Co., Inc., 84 E. 10th St., New York
 Star Brass Mfg Co., Boston

GAGES, Acetylene, Oxygen, etc.

American Steam Gauge & Valve Mfg Co., Boston
 Davis-Bournonville Co., Van Wagnen Av., Jersey City, N. J.
 General Welding & Equip. Co., 106 John St., New York
 International Oxygen Co., Newark, N. J.
 United States Gauge Co., 37 Liberty St., New York
 (See also Cutting & Welding Supplies, Gas Process)

GAGES, Ammonia

American Steam Gauge & Valve Mfg Co., 118 Liberty St., New York
 Ashton Valve Co., The, 161 First St., Cambridge, 41, Mass., see p. 111
 Bristol Co., The, Waterbury, Conn.
 Crosby Steam Gauge & Valve Co., Boston
 Foxboro Co., The, Foxboro, Mass.
 Lonergan Co., J. E., Philadelphia
 Manning, Maxwell & Moore, 119 W. 40th St., New York

Montgomery & Co., 105 Fulton St., New York
 Schaeffer & Budenberg Mfg Co., The, So. 5th & Berry
 Sts., Brooklyn, N. Y.
 Star Brass Mfg Co., Boston
 United States Gauge Co., 37 Liberty St., New York

GAGES, Center

Depth, Micrometer
 Depth, Graduated Scale
 Drill, Steel Wire & Tap
 Engineers'
 Radius
 Screw Pitch
 Sheet Metal, Circular
 Sheet Metal, Rectangular
 Surface
 Thickness
 Wire, American Standard
 Wire, Birmingham

Brombacker & Co., A. F., 31 Fulton St., New York
 Brown & Sharpe, Providence, R. I.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Davis Hunt & Colister Hdw. Co., 2062 Ontario St.,
 Cleveland
 Fairbanks Co., 416 Broome St., New York
 Goodell Pratt Co., Greenfield, Mass.
 Hammacher, Schlemmer & Co., 133 Fourth Av., New York
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Lundstrom Tool Die & Gage Co., Bridgeport, Conn.
 Machinist Supply Co., Pittsburgh
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Simplex Tool Co., Woonsocket, R. I.
 Starrett, L. S., Athol, Mass.
 Strelinger & Co., Chas A., 43 Larned St., Detroit, Mich.

GAGES, Draft, Boiler & Fireroom

Bristol Co., The, Waterbury, Conn.
 Brown Instrument Co., Philadelphia
 Ellison, Lewis M., Chicago
 Foxboro Co., Inc., The, Foxboro, Mass.
 Peabody Engineering Corp, 331 Madison Av., New York,
 see p 65
 Schaeffer & Brudenberg Mfg. Co., The, 84 Broadway,
 Brooklyn, N. Y.
 Uehling Instrument Co., 71 Broadway, New York

GAGES, Marking & Mortise

Buckeye Saw Vise Co., 9401 Lake Av., Cleveland
 Chandler & Farquhar Co., 32 Federal St., Boston
 Diston & Sons, Henry, Tacony, Philadelphia
 Johnson Rule Mfg Co., E. P., 565 Washington Blvd.,
 Chicago
 Shapleigh Hardware Co., St. Louis, Mo.
 Stanley Rule & Level Co., New Britain, Conn.
 Stearns & Co., Syracuse, N. Y.
 Strelinger Co., Chas. A., 35 Larned St., Detroit, Mich.
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York

GAGES, Mercurial, Vacuum

American Steam Gauge & Valve Co., Boston
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Popkin Bros., Inc., 267 Wyckoff St., Brooklyn, N. Y.
 Schaeffer & Budenberg Mfg Co., The, 84 Broadway,
 Brooklyn, N. Y.

GAGES, Recording, Pressure & Vacuum, Steam, Air & Gas

Bristol Co., The, Waterbury, Conn.
 Brown Instrument Co., The, Philadelphia
 Foxboro Co., Inc., The, Foxboro, Mass.
 Starr Brass Mfg Co., Boston
 Taylor Instrument Cos., Rochester, N. Y.

GAGES, Steam, Pressure, Vacuum & Combined

American Steam Gauge & Valve Mfg Co., Boston
 Ashcroft Manufacturing Co., 119 W. 40th St., New York
 Ashton Valve Co., The, 161 First St., Cambridge, 41,
 Mass., see p. 111
 Bristol Co., The, Waterbury, Conn.
 Brown Instrument Co., The, Philadelphia
 Crosby Steam Gage & Valve Co., Boston

Foxboro Co., Inc., The, Foxboro, Mass.
 Lonergan Co., J. E., 211 Race St., Philadelphia
 National Steam Specialty Co., 12 S. Clinton St., Boston
 Parks Engineering Co., Philadelphia
 Schaeffer & Budenberg Mfg Co., The, 80 Broadway,
 Brooklyn, N. Y.
 Starr Brass Mfg Co., Boston
 Surpluss Dunn & Co., 74 Murray St., New York
 Taylor Instrument Cos., Rochester, N. Y.
 United States Gauge Co., 37 Liberty St., New York

GAGES, Tide

Bausch & Lomb Co., Rochester, N. Y.
 Brown Instrument Co., The, Philadelphia
 Keuffel & Esser Co., 127 Fulton St., New York

GAGES, Water

Ashcroft Manufacturing Co., 119 W. 40th St., New York
 American Lubricator Co., Detroit, Mich.
 American Steam Gage & Valve Mfg Co., Boston
 Beaton & Cadwell Mfg Co., 234 Water St., New York
 Buckeye Iron & Brass Works, Dayton, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crosby Steam Gage & Valve Co., 100 Walker St., New
 York
 Cuyler & Mohler, Baltimore
 Detroit Brass Works, Detroit, Mich.
 Detroit Lubricator Co., Detroit, Mich.
 Durand-Koerting Glass Co., Inc., Vineland, N. J.
 Fairbanks Company, 416 Broome St., New York
 Huyette Co., Paul B., Philadelphia
 Lonergan Co., J. E., Philadelphia
 McNab & Harlin Mfg Co., 55 John St., New York
 McRae & Roberts Co., Detroit, Mich.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Marsh & Co., Jas. P., Chicago
 Michigan Lubricator Co., Detroit, Mich.
 National Gage Co., 300 Pacific St., Brooklyn, N. Y.
 National Gage & Equipment Co., La Crosse, Wis.
 National Steam Specialty Co., Chicago
 New England Steam Gage Co., Niantic, Conn.
 Northwestern Heating & Contracting Co., Erie, Pa.
 Penn. Engineering Co., Philadelphia
 Precision Instrument Co., Detroit, Mich.
 Powell Co., William, Cincinnati
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp.
 66 & 67

Sanville, Chas. P., Philadelphia
 Simmons Co., John, 110 Centre St., New York
 Star Brass Manufacturing Co., Boston
 United States Gauge Co., 37 Liberty St., New York

GALLEY EQUIPMENT

Aldrich Manufacturing Co., Buffalo, N. Y.
 Aluminum Cooking Utensil Co., New Kensington, Pa.
 American Cutlery Co., Chicago
 Baker, Hamilton & Pacific Co., San Francisco
 Blickman, Isador, 479 First Av., New York
 Bramhall Deane Co., 261 W. 36th St., New York
 Buse, Fred, 123 Broad St., New York
 Buzzini, Inc., Walter J., 505 W. 21st St., New York
 Central Stamping Co., 206 Broadway, New York
 Channon Emery Stove Co., Quincy, Ill., see p. 52
 Duparquet, Huot & Moneuse Co., 110 W. 22d St., New
 York
 Fleck Bros. Co., Philadelphia
 Gimbel, Ellis A., Philadelphia
 Griswold Manufacturing Co., Erie, Pa.
 Hillson Co., H. M., Boston
 Hobart Manufacturing Co., Troy, N. Y.
 Jones Hollow Ware Co., Baltimore
 Katzinger Co., Edward, Chicago
 Lalance & Grosjean Mfg Co., 299 Broadway, New York
 Lynn-Superior Co., The, Cincinnati
 Marine Supply Co., Pier 1, Seattle, Wash.
 Marine Works, The, 31 Coenties Slip, New York
 Metallograph Corp., G. C. Terminal, New York
 Nathan-Dohrmann Co., San Francisco
 National Marine Lamp Co., Forestville, Conn.
 Reliance Metal Spin. & Stpg. Co., Inc., 160 John St.
 Brooklyn, N. Y.
 Rudman & Scofield, 277 Pearl St., New York

STERLING-COOPER CO., NEW YORK

Schmitt Metal Products Co., Geo. P., 2d & Madison Sts., Oakland, Cal.
 Sexton Stove & Mfg Co., S. B., Baltimore
 Silver & Co., Inc., 304 Hewes St., Brooklyn, N. Y.
 Somers Manufacturing Co., (kettles) Buffalo
 Stearns Co., The, 1531 So. Michigan Av., Chicago
 Superior Sheet Metal Works Co., Indianapolis, Ind.
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 Van Range Co., John, The, Cincinnati
 Webb & Son Co., Elisha, 136 So. Front St., New York
 Western Tinware Co., St. Louis, Mo.
 Wahman Manufacturing Co., Baltimore
 Wrought Iron Range Co., St. Louis, Mo.

GALLEY RANGES

Bramhall, Deane Co., 263A W. 36th St., New York
 Buzzini, Inc., Walter J., 505 W. 21st St., New York
 Channon Emery Stove Co., Quincy, Ill., see p. 52
 Duparquet Huot & Moneuse Co., 108 W. 22d St., New York
 Madsen Iron Work, Los Angeles, Cal.
 Malleable Steel Range Mfg Co., The, South Bend, Ind.
 Manion & Co., New Orleans
 Morandi-Proctor Co., Boston
 Stamford Foundry Co., Stamford, Conn.
 Webb & Son Co., Elisha, 136 So. Front St., Philadelphia

GALVANIZING FLUX (See Flux, Galvanizing)**GAS ANALYSIS INSTRUMENTS**

Central Scientific Co., Chicago
 Foxboro Co., Foxboro, Mass.
 Harger Co., F. D., Buffalo
 Hays Corp., Jos. W., Michigan City, Ind.
 Precision Instrument Co., Detroit, Mich.
 Schaeffer & Budenberg Mfg Co., 84 Bdw., Bklyn., N. Y.
 Tagliabue Mfg Co., Chas. J., 18 33d St., Bklyn., New York
 Uehling Instrument Co., 71 Broadway, New York
 Vulcan Fuel Economy Co., Chicago

GASKET RUBBER, Sheet & Strip

American Rubber Mfg Co., Emeryville, Cal.
 Belmont Packing & Rubber Co., 133 N. 2d St., Philadelphia
 Bowers Rubber Works, 68 Sacramento St., San Francisco
 Dominion Asbestos & Rub. Corp., 154 Nassau St., New York
 Elkhart Rubber Works, Elkhart, Ind.
 Essex Rubber Co., Trenton, N. J.
 Federal Rubber Co., Cudahy, Wis.
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Manhattan Rubber Mfg Co., Passaic, N. J.
 Mikesell Bros. Co., 156 N. La Salle St., Chicago
 Miller Rubber Co., Akron, Ohio
 Ohio Rubber Co., Cleveland
 Palmer Equipment Co., Chicago
 Plant Rubber & Asbestos Works, San Francisco
 Quaker City Rubber Co., 629 Market St., Philadelphia
 United States Rubber Co., 1790 Broadway, New York, see p. 57

GASKETS, Ammonia

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crane Packing Co., Chicago
 Flexitallic Gasket Co., Camden, N. J.
 Frick Company, Waynesboro, Pa., see p. 97
 Frigid Engineering Corp., Vancouver, Wash.
 Gay & Son, C. M., Los Angeles
 Greene, Tweed & Co., 109 Duane St., New York
 Harris Ice Machine Works, Portland, Ore.
 McCord Manufacturing Co., Detroit, Mich.
 Vulcan Iron Works, San Francisco
 York Manufacturing Co., York, Pa., see p. 98

GASKETS, Asbestos

American Asbestos Co., Norristown, Pa.
 Belmont Packing & Rubber Co., 133 N. 2d St., Philadelphia
 Carey Co., Philip, Lockland, Cincinnati
 Cincinnati Gasket & Packing Co., Cincinnati
 Dominion Asbestos & Rub. Co., 154 Nassau St., New York
 Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass., see p. 53
 Flexitallic Gasket Co., Camden, N. J.

General Asbestos & Rubber Co., Charleston, S. C.
 Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Goetze Gasket & Packing Co., 17 Allen Av., New Brunswick, N. J.
 Goodrich Co., B. F., Akron, Ohio
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Johns-Pratt Co., Hartford, Conn.
 Plant Rubber & Asbestos Works, San Francisco
 Springman Paper Products Co., Detroit, Mich.
 Vulcan Asbestos Mfg Co., Produce Ex. Annex, New York
 Wilcox Mfg Co., 6330 Stony Island Av., Chicago
 Wing & Co., J. T., 15-19 Woodward Av., Detroit, Mich.

GASKETS, Boiler

Belmont Packing & Rubber Co., Philadelphia
 Canfield Co., H. O., Bridgeport, Conn.
 Carey Co., Philip, Cincinnati
 Cincinnati Gasket & Packing Co., Cincinnati
 Consolidated Pack. & Sup. Co., 21 Barclay St., New York
 Crandall Packing Co., Palmyra, N. Y.
 Dominion Asbestos & Rub. Co., 154 Nassau St., New York
 Durable Manufacturing Co., 114 Liberty St., New York
 Empire Rubber & Tire Co., Trenton, N. J.
 Flexitallic Gasket Co., Camden, N. J.
 Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York
 Johns-Pratt Co., The, Hartford, Conn.
 Judd & Leland Manufacturing Co., Clifton Springs, N. Y.
 Keasbey & Mattison Co., Ambler, Pa.
 New Jersey Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 U. S. Indestructible Gasket Co., 50 Church St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57
 Vulcan Asbestos Mfg Co., 95 Broad St., New York
 Wilcox Co., E. A., 6330 Stony Id. Av., Chicago

GASKETS, Copper

Akron Metallic Gasket Co., Akron, Ohio
 Cincinnati Gasket & Packing Co., Cincinnati
 Consolidated Pack. & Sup. Co., 21 Barclay St., New York
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Guillott Metal Gasket & Supply Co., Chicago
 McCord Manufacturing Co., Detroit, Mich.
 Wilcox Co., E. A., 6330 Stony Id. Av., Chicago

GASKETS, Copper, Corrugated

Akron Metallic Gasket Co., 150 N. Union St., Akron, Ohio
 American Spiral Pipe Works, Chicago
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Durable Mfg Co., 118 Liberty St., New York
 Keating Co., E. F., 446 Water St., New York
 McCord Manufacturing Co., Detroit, Mich.
 Merchant & Evans, 242 Water St., New York
 Taunton, New Bedford Cop. Co., 31 Howard St., New York
 U. S. Indestructible Gasket Co., 50 Church St., New York
 U. S. Mineral Wool Co., 140 Cedar St., New York

GASKETS, Cut to Pattern

Cincinnati Gasket & Packing Co., 1546 Elm St., Cincinnati
 Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass., see p. 53

GASKETS, Fibre

American Vulcanized Fibre Co., Wilmington, Del.
 Cincinnati Gasket & Packing Co., Cincinnati
 Diamond State Fibre Company, Bridgeport, Conn.
 Edison Packing & Sales Co., 234 State St., Boston
 Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass., see p. 53
 Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Klenck Co., F. J., San Francisco
 Plant, Rubber & Asbestos Works, San Francisco
 U. S. Indestructible Gasket Co., 50 Church St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57

GASKETS, Lead

Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Guillatt Metal Gasket Co., Chicago
 United Lead Co., 111 Broadway, New York
 Wilcox Co., E. A., 6330 Stony Id. Av., Chicago

GASKETS, Metal Insertion

Consolidated Pack. & Sup. Co., 21 Barclay St., New York
 Crandall Packing Co., Palmyra, N. Y.
 Flexitall Gasket Co., Camden, N. J.
 Gasket Supply Co., 1726 Ludlow St., Philadelphia
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Wilcox Co., E. A., 6330 Stony Id. Av., Chicago

GASKETS, Rubber, Molded (See Gasket Rubber, Sheet & Strip)**GASOLINE**

Fan-American Petroleum Co., Los Angeles, Cal.
 Sun Co., 1428 So. Penn Square, Philadelphia
 Standard Oil Co. of N. Y., 26 Broadway, New York
 Standard Oil Co. of Cal., San Francisco
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Tidewater Oil Co., 11 Broadway, New York
 Union Oil Co. of California, San Francisco
 (See also Port Data Section)

GASOLINE & KEROSENE ENGINES, 100 H. P. & Over

Acme Engine Co., San Francisco
 Atlas Imperial Engine Co., Oakland, Cal.
 Automatic Machine Co., The, Bridgeport, Conn.
 Buffalo Gasoline Motor Co., Buffalo, N. Y.
 Clay Engine Mfg Co., The, Cleveland
 Consolidated S. B. Corp., Morris Heights, New York
 Cottrell & Sons, C. B., Westerly, R. I.
 Doak Gas Engine Co., Oakland, Cal.
 Elco Co., The, Bayonne, N. J.
 Enterprise Foundry Co., San Francisco
 Hall Scott Motor Car Co., West Berkeley, Cal.
 Harris Marine Engine Co., Wilmington, Del.
 Murray & Tregurtha Corp., Atlantic, Mass.
 Niagara Motors Corp., Dunkirk, N. Y.
 Standard Gas Engine Co., Oakland, Cal.
 Standard Motor Construction Co., Jersey City, N. J.
 Sterling Engine Co., Buffalo, N. Y.
 Union Gas Engine Co., Oakland, Cal.
 Van Blerck Motor Co., Monroe, Mich.
 Winton Engine Works, Cleveland
 Wolverine Motor Works, Bridgeport, Conn.

GASOLINE STORAGE EQUIPMENT

Koven & Bro., L. O., Jersey City, N. J.
 Scaife & Sons Co., Wm. B., Pittsburgh
 Wayne Oil Tank & Pump Co., Fort Wayne, Ind.

GEAR COMPOUNDS

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

GEARS, Reduction (See Reduction Gears)**GENERATING SETS, Ship Lighting**

Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Bessemer Gas Engine Co., Philadelphia
 Buffalo Gasoline Motor Co., Buffalo
 De La Vergne Machine Co., East 138th St., New York
 De Laval Steam Turbine Co., Trenton, N. J., see pp. 106 & 107

Engberg's Electric & Mechanical Wks, St. Joseph, Mich.
 Fairbanks, Morse & Co., Chicago

General Electric Co., Schenectady, N. Y., see pp. 36-41

Kerr Turbine Co., Wellsville, N. Y.

Herzog Electric & Engineering Co., San Francisco

Langstadt-Meyer Co., Appleton, Wis.

Matthews Engineering Co., Sandusky, Ohio

NePage, McKinney Co., Portland, Ore.

Radiant Mfg Co., Sandusky, Ohio

Reliance Electric & Engineering Co., The, Cleveland

Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108 & 109

Superior Electric Mfg Co., Cincinnati

Western Electric Co., Inc., 151 Fifth Av., New York

Westinghouse Electric & Mfg Co., Pittsburgh

Winton Engine Works, Cleveland

GENERATORS, Arc Welding (See Cutting & Welding)**GENERATORS, Battery Charging (See Battery Charging Apparatus)****GENERATORS, Belt Driven, A. C. & D. C.**

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Westinghouse Electric & Mfg. Co., Pittsburgh

GENERATORS, Electric Ship Propulsion

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

General Electric Co., Schenectady, N. Y., see pp. 36-41
 Westinghouse Electric & Mfg Co., Pittsburgh

GENERATORS, Engine Driven (See Generating Sets)**GENERATORS, Turbine Driven**

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Cramp & Sons Ship & Eng. Bldg. Co., The Wm., Philadelphia
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Kerr Turbine Co., Wellsville, N. Y.
 Moore Steam Turbine Corp., Wellsville, N. Y.
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108 & 109
 Westinghouse Electric & Mfg Co., Pittsburgh

GLASSES, Oil Cup

Diamond Specialty & Supply Co., Harrison Bldg., Philadelphia
 Donnelly Co., J. R., 54 Classon Av., Brooklyn, N. Y.
 Hall Manufacturing Co., Harrison, N. J.
 Lonergan & Co., J. E., 211 Race St., Philadelphia
 Lunkenheimer Co., Cincinnati
 McRae & Roberts Co., Detroit, Mich.
 Macbeth Evans Glass Co., 19 W. 44th St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Montgomery & Co., 105 Fulton St., New York
 Powell Co., Wm., Cincinnati
 Rogers Co., H. A., 19 John St., New York
 Sneath Glass Co., 160 Fifth Av., New York
 Williams & Wells, 248 Fulton St., New York

GLASS

American Glass & Beveling Co., The, Cincinnati
 Cowen's Son, N., 14 Wooster St., New York
 Donnelly Co., J. R., 54 Classon Av., Brooklyn, N. Y.
 Edmonds & Co., Thos. C., 1828 Park Av., New York
 Elias & Co., Jos., 630 Jackson Av., Long Island City, N. Y.
 Gallagher, P. J., 24 Chambers St., New York
 Glass Founders Corp, Milltown, N. J.
 Greenpoint Glass Co., 97 Greenpoint Av., Brooklyn, N. Y.
 Hives-Turner Glass Co., 30th & Walnut Sts., Philadelphia
 Hodgkiss, Geo., 319 Kosciusko St., Brooklyn, N. Y.
 Kimble Glass Co., 241 W. 37th St., New York
 McCormack & Co., Geo. H., 1133 Broadway, New York
 Metropolitan Mirror Wks, Inc., 667 Kent Av., Bklyn. N. Y.
 Mississippi Wire Glass Co., 220 Fifth Av., New York
 Parshelsky Bros., 131 Morgan Av., Brooklyn, N. Y.
 Pennsylvania Wire Glass Co., Philadelphia
 Pittsburgh Plate Glass Co., Dean St., Brooklyn, N. Y.
 Schrenk & Co., 440 Lafayette St., New York
 Shuldinger, Inc., David, 319 E. 53d St., New York
 Tiffany Glass & Decorating Co., 46 W. 23d St., New York
 Triplex Safety Glass Corp of Amer., 501 Fifth Av., New York

GLASS, Non-Shatterable.

Super Glass Co., The, Philadelphia
 Triplex Safety Glass Corp of Amer., 501 Fifth Av., New York

GLASS, Port & Deck Lights (See Also Glass)

Abraham, Harry, 134 Mott St., New York
 Donnelly Co., J. R., 54 Classon Av., Brooklyn, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Pittsburgh Lamp, Brass & Glass Co., Pittsburgh
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

GLASSWARE

Barth & Sons, L., 32 Cooper Sq., New York
 Dobson & Co., Jno A., 110 Hopkins Pl., Baltimore
 Economy Tumbler Co., 10 W. 23d St., New York
 Huntington Tumbler Co., Huntington, W. Va.
 Paden City Glass Mfg Co., Paden City, W. Va.
 Pennsylvania Glass & Mfg Co., 404 Diamond St., Pittsburgh
 Roth Co., John C., 159 N. State St., Chicago
 Shaw, & Co., Jas. M., 25 Duane St., New York

GLOBES, Ceiling Fixture

Flanged Heel
 Prismatic Ceiling Fixture
 Prismatic, Frosted
 Steam Tight

Adams & Westlake Co., 319 W. Ontario St., Chicago
 Arnessen Electric Co., 109 Broad St., New York
 Beardslee Chandelier Mfg Co., 216 S. Jefferson St., Chicago
 Benjamin Elec. Mfg Co., Chicago
 Corning Glass Works, Corning, N. Y.
 Fullerton Electric Co., 15 W. 20th St., New York
 Gleason-Tiebout Glass Co., 200 Fifth Av., New York
 Harrison Fixture Works, 59 Harrison Av., Bklyn., N. Y.
 Henkel & Best Co., Chicago
 Holoplane Glass Co., 340 Madison Av., New York
 Kayline Co., The, Cleveland
 Latham & Co., E. B., 550 Pearl St., New York
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Macbeth Evans Glass Co., 19 W. 44th St., New York
 Marine Electric Co., San Francisco
 National X-Ray Reflection Co., Chicago
 NePage McKinney, Portland, Ore.
 St. Louis Brass Mfg Co., St. Louis, Mo.
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich.,
 see p. 43
 Solar Light Co., 69 Wooster St., New York
 Wellington Glass Co., 200 Fifth Av., New York
 Wetmore-Savage Co., 76 Pearl St., Boston

GLOBES, Lantern, Clear & Colored

Adams & Westlake Co., Ontario & Franklin Sts., Chicago
 Corning Glass Works, Corning, N. Y.
 Fisher Bros. & Co., 219 Market St., Philadelphia
 Gill Bros. Co., Steubenville, Ohio
 Gillinder & Sons, Inc., Tacony, Philadelphia
 Gleason Tiebout Glass Co., 200 Fifth Av., New York
 Jenkins Glass Co., D. E., Kokomo, Ind.
 Libbey Glass Co., Toledo, Ohio
 Lovell & Co., F. H., Arlington, N. J.
 McKee Glass Co., 200 Fifth Av., New York
 Macbeth Evans Glass Co., 19 W. 44th St., New York
 National Marine Lamp Co., 254 Pearl St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
 Pittsburgh Lamp-Brass-Glass Co., Pittsburgh
 Sneath Glass Co., Hartford City, Ind.

GLOVES, Acid, Rubber

Canton Rubber Co., 240 Broadway, New York
 Colonial Hospital Supply Co., Chicago
 Daval Rubber Co., Providence, R. I.
 Eimer & Amend, 211 Third Av., New York
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Rubber Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
 Hodgman Rubber Co., 8 W. 40th St., New York
 Quaker City Rubber Co., 629 Market St., Philadelphia
 Ravenna Rubber Co., Ravenna, Ohio
 Seamless Rubber Co. of N. Y., New Haven, Conn.
 Standard Glove Co., 1811 Ellen St., Chicago
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Western Electric Co., 151 Fifth Av., New York

GLOVES, Asbestos Gauntlet

American Asbestos Co., Norristown, Pa.
 Asbestos Fibre Spin. Co., North Wales Co., Philadelphia
 Asbestos Textile Co., 233 Broadway, New York
 Carey Co., Philip, Lockland, Cincinnati
 Dominion Asbestos & Rub Corp., 154 Nassau St., New York
 Gerding, G. W., 405 Commerce St., Philadelphia

Johns-Manville Co., H. W., Madison Av. & 41st St.,
 New York
 Keasbey & Mattison Co., Ambler, Pa.
 Mikesell Bros., 156 N. La Salle St., Chicago
 Spencer Glove Co., Waverly, N. Y.

GLOVES, Burnishing

Hickory Steel Grip Glove Co., 2418 Diversey Av., Chicago
 Mott Sand Blast Mfg Co., 2 Frost St., Brooklyn, N. Y.
 Manhattan Supply Co., 115 Franklin St., New York
 Pangborn Corp., Hagerstown, Md.

GLUE, Liquid

American Glue Co., 121 Beverly St., Boston
 Commonwealth Glue Co., 40 N. Market St., Boston
 Ferdinand & Co., L. W., 152 Kneeland St., Boston
 Rex Paint Corp., 32 Broadway, New York
 Russia Cement Co., Gloucester, Mass.
 Standard Glue Co., 475 W. Broadway, New York

GLUE, Marine

Alterite Paint & Mfg Co., Des Moines, Iowa
 American Glue Co., 121 Beverly St., Boston
 Armour & Co., Union Stockyards, Chicago
 Atlantic Drier & Varnish Co., Meadow & Wolf Sts.,
 Philadelphia
 Binney & Smith Co., 81 Fulton St., New York
 Bituminous Products Co., 1 Drumm St., San Francisco
 Brinnistool Co., Los Angeles
 California Glue Co., San Francisco
 California Paint Co., Oakland, Cal.
 Fasdura Co., Philadelphia
 Federal Composition & Paint Co., Ltd., 17 Battery Place,
 New York
 Ferdinand & Co., L. W., Boston
 Hummell & Robinson, 26 Cortland St., New York
 Oxidite Mfg Co., San Francisco
 Pockels Drug, Glass & Paint Co., St. Louis
 Siemon & Elting, 99 Nassau St., New York
 Williams, Wm. E., 62 Front St., New York

GLUE POTS, Electric

General Electric Co., Schenectady, N. Y., see pp. 36-41

GOGGLES, Safety (Welders, etc.)

Hardy & Co., F. A., Chicago
 King Optical Co., Julius, 10 Maiden Lane, New York
 McIntire, Magee & Brown Co., 723 Sansom St., Phila-
 delphia
 Safety Equipment Service Co., The, Cleveland
 Standard Optical Co., Geneva, N. Y.
 Willson Goggles, Inc., Reading, Pa.

GOLD LEAF

American Roll Gold Leaf Co., Providence, R. I.
 Cabot & Higley, 159 Harrison Av., Boston
 Coe Manufacturing Co., H. W., Providence, R. I.
 Devoe & Reynolds Co., 101 Fulton St., New York
 Lucas & Co., John, 521 Washington St., New York

GONGS, Trip, Brass Mounted

Cory & Son, Chas., King & Varick Sts., New York
 Dayton Manufacturing Co., Dayton, Ohio
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Manhattan Supply Co., 115 Franklin St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Montgomery & Co., 105 Fulton St., New York
 Powell Co., Wm., Cincinnati
 Starr Bros., Bell Co., E. Hampton, Conn.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 Van Duzen Co., E. W., 428 E. 2d St., Cincinnati
 Williams & Wells, 248 Fulton St., New York

**GOUGES, Firmer, Socket, Inside Bevel Sets
Firmer, Socket, Outside Bevel Sets**

Beadley Axe & Tool Co., G. W., Jersey City, N. J.
 Brombacker & Co., A. F., 31 Fulton St., New York
 Buck Bros., Milburg, Mass.
 Chandler & Farquhar, 32 Federal St., Boston
 Dale Brewster Mach. Co., Inc., 54 Lafayette St., New York
 Fairbanks Co., 416 Broome St., New York
 Frank Jr., Henry, 374 Hudson, New York

1. The following information was obtained from the records of the
2. Department of the Interior, Bureau of Land Management, regarding the
3. land owned by the United States in the State of California:
4. The total area of land owned by the United States in California is
5. approximately 10,000,000 acres. This land is divided into several
6. categories, including National Forests, National Monuments, and
7. National Antiquities. The majority of the land is owned by the
8. Bureau of Land Management, which is responsible for the management
9. and conservation of the land. The following table shows the distribution
10. of the land by category:

Category	Area (Acres)
National Forests	10,000,000
National Monuments	1,000,000
National Antiquities	500,000
Other	500,000

11. The following information was obtained from the records of the
12. Department of the Interior, Bureau of Land Management, regarding the
13. land owned by the United States in the State of California:
14. The total area of land owned by the United States in California is
15. approximately 10,000,000 acres. This land is divided into several
16. categories, including National Forests, National Monuments, and
17. National Antiquities. The majority of the land is owned by the
18. Bureau of Land Management, which is responsible for the management
19. and conservation of the land. The following table shows the distribution
20. of the land by category:

Category	Area (Acres)
National Forests	10,000,000
National Monuments	1,000,000
National Antiquities	500,000
Other	500,000

21. The following information was obtained from the records of the
22. Department of the Interior, Bureau of Land Management, regarding the
23. land owned by the United States in the State of California:
24. The total area of land owned by the United States in California is
25. approximately 10,000,000 acres. This land is divided into several
26. categories, including National Forests, National Monuments, and
27. National Antiquities. The majority of the land is owned by the
28. Bureau of Land Management, which is responsible for the management
29. and conservation of the land. The following table shows the distribution
30. of the land by category:

Category	Area (Acres)
National Forests	10,000,000
National Monuments	1,000,000
National Antiquities	500,000
Other	500,000

Galbraith & Sons, C. C., 117 West St., New York
 Graham & Co., John H., 113 Chambers St., New York
 Greenlee Bros. & Co., Rockford, Ill.
 Jennings & Co., C. E., New Haven, Conn.
 Mack & Co., 100 Brown's Race, Rochester, N. Y.
 Modern Tool & Mach Wks, Inc., Newark, N. J.
 Oliver Machinery Co., 50 Church St., New York
 Peck, Stow & Wilcox, 46 W. Broadway, New York
 Sargent & Co., 94 Centre St., New York
 Shapleigh Hardware Co., St. Louis, Mo.
 Surpluss Dunn & Co., 74 Murray St., New York
 Swan & Co., James, Seymour, Conn.
 Union Hardware Co., Torrington, Conn.
 Winsted Edge Tool Works, Winsted, Conn.

GOVERNORS, Marine Engine, Automatic Non-Racing

Cory & Son, Inc., Chas., King & Varick Sts., New York

GOVERNORS, Pump

D'Este Co., Julian, Boston
 Foster Engineering Co., 109 Monroe St., Newark, N. J.
 Jenkins Bros., 80 White St., New York
 Kieley & Mueller, 34 W. 13th St., New York
 Mason Regulator Co., Boston
 Schutte & Koerting Co., Philadelphia
 Walworth Mfg Co., Boston
 Worthington Pump & Machinery Corp, 115 Broadway,
 New York, see pp. 74-81
 Wright-Austin Co., Detroit, Mich.

GOVERNORS, Turbine, Steam

De Laval Steam Turbine Co., Trenton, N. J., see pp.
 106 & 107
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Kerr Turbine Co., Wellsville, N. Y.
 Moore Steam Turbine Corp, Wellsville, N. Y.
 Poole Engrg & Machine Co., Baltimore
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109
 Terry Steam Turbine Co., The, Hartford, Conn., see p. 110
 Westinghouse Electric & Mfg Co., Pittsburgh

GRAPHITE, Boiler

Acheson Graphite Co., Niagara Falls, N. Y.
 Dixon Crucible Co., Jos., Jersey City, N. J.
 United States Graphite Co., Saginaw, Mich.

GRAPHITE, Defloculated

Acheson Graphite Co., Niagara Falls, N. Y.
GRAPHITE, Lubricating, Amorphous & Flake
 (See Grease, Lubricating, Graphite)

GRAPNELS, Anchor

Diamond Expansion Bolt Co., 90 West St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Laughlin & Co., Thos., Portland, Me.
 Marine Hardware & Equipment Co., So. Portland, Me.
 Topping Bros., 122 Chambers St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

GRATE BARS

Adams Foundry Co., Wm., Philadelphia
 Alexander & Garsed, Charlotte, N. C.
 American Foundry & Machine Co., Bloomington, Ill.
 Balk & Company Iron Works, Louisville, Ky.
 Beckwith Company, Dowagiac, Mich.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Bolivar Foundry & Machine Co., Bolivar, Pa.
 Bosworth Ard Machine & Foundry Co., Anniston, Ala.
 Budd Grate Company, Philadelphia
 Burt Foundry Company, Toledo, Ohio
 Carr, James W., Richmond, Va.
 Casey-Hedges Co., Chattanooga, Tenn.
 Centre Foundry & Machine Co., Wheeling, W. Va.
 Chambers Manufacturing Co., Lima, Ohio
 Channon Emery Stove Co., Quincy, Ill., see p. 52
 Chattanooga Implement & Mfg Co., Chattanooga, Tenn.
 Cummings Foundry Co., T. A., Chicago
 Davenport Co., John, Stamford, Conn.
 East Jordan Iron Works, East Jordan, Mich.
 Farrar & Trefts, Inc., Buffalo

Forest City Foundry & Mfg Co., Cleveland
 Gehl Bros. Manufacturing Co., West Bend, Wis.
 Greensburg Foundry & Machine Co., Jeanette, Pa.
 Hackett Foundry Co., Charlotte, N. C.
 Hoosier Castings Co., Connersville, Ind.
 Kanawka Manufacturing Co., Charleston, W. Va.
 Keystone Stoker Co., Greenfield, Mass.
 Keystone Machine Co., York, Pa.
 Kilby Car & Foundry Co., Birmingham, Ala.
 Lackawanna Steel Co., Lackawanna, N. Y.
 Levering Brothers, Baltimore
 Lovell Manufacturing Co., Gawanda, N. Y.
 McClave-Brooks Co., Scranton, Pa.
 Main Iron Works, San Francisco
 Miller Foundry Co., Henry, Cleveland
 National Foundry Mfg & Supply Co., Williamsport, Pa.
 National Metal Products Co., Cleveland
 Ornamental Foundry Co., Anniston, Ala.
 Peninsula Iron Works, Portland, Ore.
 Phoenix Iron Works, Meadville, Pa.
 Thomas Grate Bar Co., Birmingham, Ala.
 Williamson Co., J. E., Bellwood, Pa.
 Wilmington Iron Works, Wilmington, N. C.
 Woodruff & Edwards Co., Elgin, Ill.

GRATINGS, Iron & Steel

Anchor Post Iron Wks., Long Island City, N. Y.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Empire Architectural Iron Wks, Inc., 15 E. 137th St.,
 New York
 Foran Foundry & Mfg Co., 122 Liberty St., New York
 Hoffman & Co., R. C., Baltimore
 Irving Iron Wks Co., Long Island City, N. Y.
 Jonson, Edwin H., 114 Liberty St., New York
 Just Co., Geo. A., 239 Vernon Av., Long Island City, N. Y.
 Maher & Flockhart, 60 Polk St., Newark, N. J.
 Mark & Mohl, Inc., Third Av., Brooklyn, N. Y.
 Pitt Composite Iron Wks, Wm. R., 219 W. 26th St.,
 New York
 Standard Steel Sections, Inc., 608 E. 133d St., New York
 Thatcher & Co., Geo. H., Albany, N. Y.
 Union Iron Works, Hoboken, N. J.
 U. S. Cast Iron Pipe & Fdry Co., 71 Bway., New York
 Whale Creek Iron Works, 245 Huron St., Bklyn., N. Y.
 Youngstown Fdry & Mach Co., Youngstown, Ohio

GREASE, Launching

Acheson Graphite Co., Niagara Falls, N. Y.
 Borne, Scrymser Co., 80 South St., New York
 Fiske Bros., Refining Co., 24 State St., New York
 Keystone Lubricating Co., The., 21st & Clearfield Sts.,
 Philadelphia
 Standard Oil Co. of California, San Francisco
 Stevenson Bros. & Co., 106 Race St., Philadelphia
 Sun Co., Philadelphia
 Swan & Finch, 522 Fifth Av., New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Warren Lubricant Co., 27 Coenties Slip, New York

GREASE, Lubricating, Graphite

Acheson Graphite Co., Niagara Falls, N. Y.
 American Oil Corp, Jackson, Mich.
 American Oil & Supply Co., Newark, N. J.
 Atlantic Refining Co., Philadelphia
 Baltimore Oil Co., Baltimore
 Chard & Howe, 250 Front St., New York
 Chester Graphite Co., Chester Springs, Pa.
 Columbia Refining Co., 90 West St., New York
 Cook's Sons, Adam, 708 Washington St., New York
 Corning, Arthur W., 206 Water St., New York
 Damascus Manufacturing Co., Cleveland
 Dixon Crucible Co., Jos., Jersey City, N. J.
 Economy Lubricating Co., Boston
 Ensign Refining Co., Cleveland
 Fiske Bros. Refining Co., 24 State St., New York
 Franklin Oil & Gas Co., Bedford, Ohio
 Globe Refining Co., Cleveland
 Graphite Lubricating Co., Bound Brook, N. J.
 Great Western Oil Co., Cleveland
 Haggerty Refining Co., 50 South St., New York
 Harris Oil Co., A. W., Providence, R. I.

Hollingshead Co., R. M., Camden, N. J.
 Hudson Oil Co., Inc., 109 Broad St., New York
 Ilsley-Doubleday & Co., 229 Front St., New York
 International Carbon Prod. Co., 230 W. 13th St., New York
 Johnson Oil Refining Co., Chicago Heights, Ill.
 Keystone Lubricating Co., Philadelphia
 Marshall Oil Co., Marshalltown, Iowa
 Miller Sons Co., A. D., Pittsburgh
 Mills Oil Co., C. E., Syracuse, N. Y.
 Moore Oil Co., Mfg Dept., Cincinnati
 Mutual Oil Co., Kansas City, Mo.
 New York & N. J. Lubricant Co., 401 Bway., New York
 New York Lubricating Oil Co., 116 Broad St., New York
 Ohio Grease Co., Loudonville, Ohio
 Pettinos, Geo. F., Philadelphia
 Phoenix Oil Co., 30 Church St., New York
 Pierce Oil Corp., St. Louis, Mo.
 Quincy Oil Co., Quincy Adams, Mass.
 Robinson Co., Wm. C., Baltimore
 Shell Co. of Calif., San Francisco
 Sinclair Refining Co., Chicago
 Stevens Grease & Oil Co., 226 Front St., New York
 Stevenson Bros. & Co., Philadelphia
 Swan & Finch Co., 522 Fifth Av., New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Tidewater Oil Co., 11 Broadway, New York
 Union Oil Co., of Calif., Los Angeles, Cal.
 U. S. Graphite Co., Saginaw, Mich.
 Van Tilburg Oil Co., Minneapolis, Minn.
 Wadhams Oil Co., Milwaukee, Wis.
 Warren Lubricant Co., 27 Coenties Slip, New York
 World Oil Products Co., 305 Lafayette St., New York

GREASE, Lubricating, Mineral, Medium & Hard

Albany Lubricating Co., 708 Washington St., New York
 Atlantic Refining Co., Philadelphia
 Cook's Sons, Adam, 708 Washington St., New York
 Economy Lubricating Co., Sullivan Square, Boston
 Fiske Bros. Refining Co., 24 State St., New York
 Indian Refining Co., 244 Madison Av., New York
 Keystone Lubricating Co., The, 21st & Clearfield Sts., Philadelphia
 Moore Oil Co., Cincinnati
 National Refining Co., Cleveland
 Ohio Grease Co., The, Loudonville, Ohio
 Pierce Oil Corp., 418 Oliver St., St. Louis, Mo.
 Red "C" Oil Mfg Co., Baltimore
 Robinson Oil Co., 3501 Lancaster Av., Philadelphia
 Sherwood Bros., Garred Bldg., Baltimore
 Sinclair Refining Co., Conway Bldg., Chicago
 Standard Oil Co. of California, San Francisco
 Standard Oil Co. of New York, 26 Broadway, New York
 Stevenson Bros., 106 Race St., Philadelphia
 Sun Company, 1428 So. Penn Sq., Philadelphia
 Swan & Finch Co., 165 Broadway, New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Tidewater Oil Co., 11 Broadway, New York
 Union Oil Co. of California, Los Angeles
 Union Petroleum Co., Widener Bldg., Philadelphia
 Vacuum Oil Co., 61 Broadway, New York

GREASE, Wool, Mixed

Borne-Scrymser Co., 80 South St., New York
 Cataract Refining & Mfg Co., 17 Battery Pl., New York
 Cook & Swan Co., Inc., 148 Front St., New York
 Cook's Sons, Inc., Adam, 708 Washington St., New York
 Contract Refining & Mfg Co., 17 Battery Pl., New York
 Corning, Arthur W., 251 Front St., New York
 Damascus Mfg Co., 9501 Cassius Av., Cleveland
 Fiske Bros. Refining Co., 24 State St., New York
 Great Western Oil Co., 37th & Erie, Cleveland
 Keystone Lubricating Co., 21st & Clearfield, Philadelphia
 Murray & Murray, 109 N. Water St., Philadelphia
 N. Y. Lubricating Oil Co., 116 Broad St., New York
 N. Y. & N. J. Lubricant Co., 165 Broadway, New York
 Robinson & Son Co., Wm. C., 32 South St., Baltimore
 Shell Co. of California, 343 Sansome St., San Francisco
 Stevens Grease & Oil Co., E. 79th St., Cleveland
 Swan & Finch, 165 Broadway, New York

GREASE CUPS (See Cups, Oil & Grease)

GREASE & OIL GUNS

Boesch Lamp Co., San Francisco
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Edelmans & Co., E., Chicago
 Noera Mfg Co., The, Waterbury, Conn.
 Robertshaw Mfg Co., Youngwood, Pa.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

GREASE EXTRACTORS

American Steam Gauge & Valve Mfg Co., Boston
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Braun & Co., C. F., San Francisco
 Elliott Co., Pittsburgh
 Filtrine Mfg Co., 53 Lexington Av., Brooklyn, N. Y., see p. 46
 Ford & Geirrine, San Francisco
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Kieley & Mueller, Inc., 34 W. 13th St., New York
 Row & Davis, Engineers, Inc., 90 West St., New York, see p. 45
 Schutte & Koerting Co., Philadelphia

GREASE GUNS

Boesch Lamp Co., San Francisco
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Edelmans & Co., E., Chicago
 Judd & Leland Mfg Co., Clifton Springs, N. Y.
 Noera Mfg Co., The, Waterbury, Conn.
 Robertshaw Mfg Co., Youngwood, Pa.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

GRINDERS, Cam & Crankshaft

Cincinnati Grinder Co., The, Cincinnati
 Eccles & Smith, San Francisco
 Henes, Louis G., San Francisco
 Landis Tool Co., Waynesboro, Pa.
 Norton Grinding Co., Worcester, Pa.

GRINDERS, Chaser or Die

Blair Tool & Machine Wks., 521 Greenwich St., New York
 Geometric Tool Co., The, New Haven, Conn.
 Modern Tool Co., Erie, Pa.
 Precision Thread Grinding Mfg Co., 1932 Arch St., Philadelphia

GRINDERS, Cutter & Reamer

Browne & Sharpe Mfg Co., Providence, R. I.
 Cincinnati Grinder Co., Cincinnati
 Cincinnati Milling Machine Co., Cincinnati
 Draper & Hall Co., Middletown, Conn.
 Garvin Machine Co., 139 Varick St., New York
 Grand Rapids Grinding Machine Co., Grand Rapids, Mich.
 Greenfield Machine Co., Greenfield, Mass.
 Greenfield Tap & Die Corp., Greenfield, Mass.
 Ingersoll Milling Machine Co., The, Rockford, Ill.
 Keystone Grinder Co., Pittsburgh
 Landis Tool Co., Waynesboro, Pa.
 LeBlond Machine Tool Co., Cincinnati
 Middlesex Machine Co., Middletown, Conn.
 Modern Tool Co., Erie, Pa.
 Noble & Westbrooks, Hartford, Conn.
 Oakley Machine Tool Co., Cincinnati
 Oesterlein Machine Co., Cincinnati
 Wilmarth & Morman, Grand Rapids, Mich.

GRINDERS, Cylindrical

Cincinnati Grinder Co., Cincinnati
 Eccles & Smith, 71 First St., San Francisco
 Heald Machine Co., The, Worcester, Mass.
 Henes, Louis G., 75 Fremont St., San Francisco
 Modern Tool Co., Erie, Pa.
 Niles-Bement-Pond Co., 111 Broadway, New York

GRINDERS, Disc

Aumen Machinery Co., Baltimore
 Nesly Co., Chas. H., 118 N. Clinton St., Chicago
 Davis Machine Tool Co., W. F., 149 Broadway, New York
 Diamond Machine Works, Providence, R. I.
 Gardner Machine Co., Beloit, Wis.
 Garvin Machine Co., 139 Varick St., New York
 Gorton Machine Co., Geo., Racine, Wis.
 G-S Machine Tool Co., Fitchburg, Mass.

Report of the
Committee on
the Administration of
the Government
of the District of
Columbia
for the year 1901
as of the 1st day of
January 1902
by the
Honorable
John D. Long
Chairman
of the
Committee
on the
Administration
of the
Government
of the
District of
Columbia
Washington
D. C.
1902

Hill, Clark & Co., 1560 Oliver St., Boston
 Kemp Machinery Co., Baltimore
 Landis Machine Co., Waynesboro, Pa.
 Lynd-Farquhar Co., 419 Atlantic Av., Boston
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Murray-Myhea Machine Co., Antigo, Wis.
 Nast Machine Co., D., Bourse Bldg., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Prentiss Company, Henry, 149 Broadway, New York
 Rowbottom Machine Co., Waterbury, Conn.
 Ryerson & Sons, Jos. T., 16th & Rockwell Sts., Chicago
 Sherritt & Storers, Finance Bldg., Philadelphia
 Shipley Machinery Co., W. E., Morris Bldg., Philadelphia

GRINDERS, Drill

Axelson Mach. Co., Box 316 Los Angeles
 Landis Tool Co., Waynesboro, Pa.
 Wilmarth & Morman, Grand Rapids, Mich.
 Woods Engrg Co., The, 108 Patterson St., Alliance, Ohio

GRINDERS, Face & Surface

Abrasive Machine Tool Co., East Providence, R. I.
 Black & Johnson, Waterbury, Conn.
 Blanchard Machine Co., Cambridge, Mass.
 Blevney Machine Co., Greenfield, Mass.
 Bridgeport Die Mfg Co., Bridgeport, Conn.
 Brown & Sharpe, Providence, R. I.
 Diamond Machine Co., Providence, R. I.
 Frazer Co., W. F., Westboro, Mass.
 Garvin Machine Co., 139 Varick St., New York
 Nail Machine Co., Hartford, Conn.
 Noble & Westbrook Mfg Co., Hartford, Conn.
 Perkins Grinder Co., Grand Rapids, Mich.
 Pratt & Whitney, Hartford, Conn.
 Universal Grinding Machine Co., Fitchburg, Mass.
 Wilmarth & Morman Co., Grand Rapids, Mich.

GRINDERS, Internal

Cincinnati Grinder Co., Cincinnati
 Eccles & Smith, 91 First St., San Francisco
 Heald Machine Co., The, Worcester, Mass.
 Woods Engineering Co., The, Alliance, Ohio

GRINDERS, Plain Dry

Blevney Machine Co., Greenfield, Mass.
 Bridgeport Safety Wheel Co., Bridgeport, Conn.
 Builders' Iron Foundry, Providence, R. I.
 Challenge Machine Co., North Wales, Pa.
 Clark Electric Co., Jas., Jr., Louisville, Ky.
 Diamond Machine Co., Providence, R. I.
 Forbes & Mayers Co., Worcester, Mass.
 La Salle Machine & Tool Co., La Salle, Ill.
 Middlesex Machine Co., Middletown, Conn.
 Noble & Westboro Mfg Co., Hartford, Conn.
 Norton Co., Worcester, Mass.
 Ranson Manufacutring Co., Oshkosh, Wis.
 Royersford Foundry & Mach Co., Royersford, Pa.
 Safety Emery Wheel Co., Springfield, Ohio
 Stallman Supply Co., F. O., San Francisco
 U. S. Electric Tool Co., The, Cincinnati
 Valley City Machine Works, Grand Rapids, Mich.
 Vitrified Wheel Co., Westfield, Mass.
 Webster & Perks Tool Co., Springfield, Ohio

GRINDERS, Portable, Electric

Black & Decker Mfg Co., The, Baltimore
 Cincinnati Electrical Tool Co., Cincinnati
 Neil & Smith Electric Tool Co., Cincinnati
 Strand & Co., N. A., Chicago
 Van Dorn Electric Tool Co., Cleveland
 Wisconsin Electric Co., Racine, Wis.

GRINDERS, Portable, Pneumatic

Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Independent Pneumatic Tool Co., Chicago
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Rix Compressed Air & Drill Co., Inc., 505 Howard St.,
 San Francisco, See p. 1

GRINDERS, Tool Post, Electric

Black & Decker Mfg Co., 66 Liberty St., Baltimore
 Chicago Pneumatic Tool Co., 52 Vanderbilt Av., New York
 Cincinnati Electric Tool Co., Cincinnati
 Clark Electric Co., Jas., Jr., Louisville, Ky.

Greiner Machinery Co., H., Bourse Bldg., Philadelphia
 Hisey-Wolf Machine Co., Cincinnati
 Independent Pneumatic Tool Co., 600 Jackson Blvd.,
 Chicago
 Luster Machinery Co., Widener Bldg., Philadelphia
 Neil & Smith Electric Tool Co., Cincinnati
 Standard Electric Tool Co., The, Cincinnati
 Stow Manufacturing Co., Binghamton, N. Y.
 U. S. Electrical Mfg Co., 300 S. Central Av., Los Angeles
 U. S. Electrical Tool Co., Cincinnati
 Van Dorn Electric Tool Co., Cleveland
 Wisconsin Elec. Tool Co., 500 Junction Av., Racine, Wis.

GRINDERS, Universal

American Tool & Mach Co., 10 High St., Boston
 Brown & Sharpe Mfg Co., Providence, R. I.
 Cincinnati Grinder Co., Cincinnati
 Cincinnati Milling Mach Co., Cincinnati
 Fraser Co., Warren F., Westboro, Mass.
 Garvin Machine Co., 139 Varick St., New York
 Gorton Mach Co., George, Racine, Wis.
 Greenfield Mach Co., Greenfield, Mass.
 Greenfield Tap & Die Corp, Greenfield, Mass.
 Hill, Clark & Co., Boston
 Kemp Machinery Co., Baltimore
 Landis Tool Co., Waynesboro, Pa.
 LeBlond Machine Tool Co., R. K., Cincinnati
 Luster Machinery Co., Widener Bldg., Philadelphia
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Middlesex Machine Co., Middletown, Conn.
 Modern Tool Co., Erie, Pa.
 Morse Twist Drill & Mach Co., New Bedford, Mass.
 Narragansett Machine Co., Pawtucket, R. I.
 Nast Machinery Co., D., Bourse Bldg., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Norton Emery Wheel Co., Worcester, Mass.
 Oakley Machine Tool Co., Cincinnati
 Ott Grinder Co., Indianapolis, Md.
 Prentiss Co., Henry, 149 Broadway, New York
 Shipley Machinery Co., W. E., Morris Bldg., Philadelphia
 Simmons Machine Co., 988 Broadway, Albany, N. Y.
 Taft & Pierce Mfg Co., Woodsocket, R. I.
 Thompson Grinder Co., Springfield, Mass.
 Universal Grinding Machine Co., Fitchburg, Mass.
 Vandyke-Churchill Co., Philadelphia
 Webster & Perks Tool Co., Springfield, Ohio
 Wilmarth & Morman Co., Grand Rapids, Mich.
 Woods Engineering Co., The, Alliance, Ohio

GRINDING COMPOUND

Carborundum Co., Niagara Falls, N. Y.
 M. T. K. Sales Corp, Rochester, N. Y.
 Norton Co., Worcester, Mass.
 Weber & Sons, J. H., Los Angeles
 White & Bagley Co., Worcester, Mass.
 Worcester Abrasive Co., 1457 Broadway, New York

GRINDING WHEELS (See Abrasive Wheels)**GRINDSTONES, Mounted**

Athol Machine Co., Athol, Mass.
 Barron & Co., Jas. S., 221 Broadway, New York
 Bowman-Edson Co., M. R., 65 Dey St., New York
 Cleveland Stone Co., Cleveland
 Dale-Brewster Mach Co., Inc., 54 Lafayette St., New York
 Hoppen & Sons, J. E., Belleville, N. J.
 Kirk Grindstone Co., Cincinnati
 Millers Falls Co., Millers Falls, Mass.
 Mitchell Grindstone Works, 605 N. Front St., Philadelphia
 Montgomery & Co., 105 Fulton St., New York
 Niles-Bement-Pond Co., 111 Broadway, New York
 Norton Grinding Co., Worcester, Mass.
 Pittsburgh Electric & Mach. Co., Pittsburgh
 Reading Hardware Co., Reading, Pa.
 Richards-Wilcox Manufacturing Co., Aurora, Ill.

GROMMETS, Gage Glass

American Rubber Mfg Co., Emeryville, Cal.
 Canfield Co., H. V., Bridgeport, Conn.
 Cincinnati Rubber Co., Cincinnati
 Elkhart Rubber Works, Elkhart, Ind.
 Essex Rubber Co., Box 501, Trenton, N. J.

Federal Rubber Co., Emeryville, Cal.
 Garrison Brass & Mach Wks, 107 W. 13th St., New York
 Ohio Rubber Co., Cleveland
 Palmer Equipment Co., Chicago
 Plant Rubber & Asbestos Works, San Francisco
 Quaker City Rubber Co., 629 Market St., Philadelphia

GROMMETS, Spur, Brass

American Brass Co., Waterbury Brass Branch, Waterbury, Mass.
 Carpenter & Co., Geo. B., 440 Wall St., Chicago
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Hughes Manufacturing Co., Inc., Rome, N. Y.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 National Marine Lamp Co., Forestville, Conn.
 Neptune Hardware Mfg Co., 29 Murray St., New York
 Scovill Manufacturing Company, Waterbury, Conn.
 Thomas Laughlin Co., The, Portland, Me.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Waterbury Manufacturing Co., Waterbury, Conn.
 (See also *Ship Chandlers, Port Data Section*)

GROOVING MACHINES, Commutator

General Electric Co., Schenectady, N. Y., see pp. 36-41

**GUARDS, Lights, Bulkhead
Lights, Deck
Portables.**

Adams & Westlake Co., Chicago
 Adapti Mfg Co., 919 West St., Cleveland
 Arnesen Electric Co., 109 Broad St., New York
 Beardslee Chandelier Mfg Co., 216 S. Jefferson St., Chicago
 Benjamin Electric Co., Chicago
 Crown Electrical Mfg Co., St. Charles, Ill.
 Faries Mfg Co., Decatur, Ill.
 Fullerton Electric Co., 15 W. 20th St., New York
 Hart & Hegeman Mfg Co., Hartford, Conn.
 Hart, Raymond S., 510 Broome St., New York
 Kayline Co., The, Cleveland
 Lincoln Electric Works, Chicago
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Marine Electric Co., San Francisco
 Morreau Co., Cleveland
 NePage McKinney, Portland, Ore.
 Philadelphia Electric Co., The, Philadelphia
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43
 Sibley-Pittman Electric Corp., 190 Sixth Av., New York
 Tideman Electric Mfg Co., Menominee, Mich.
 Wakefield Brass Co., F. W., Vermillion, Ohio
 Western Electric Co., 151 Fifth Av., New York
 Wheeler Reflector Co., Boston
 White Mfg Co., J. H., 11 N. Third St., Brooklyn, N. Y.
 Williamson & Co., R., 601 Washington St., Chicago

GUARDS, Machinery

American Wire Form Co., 96 Church St., New York
 Buffalo Wire Works, Buffalo
 Consolidated Expanded Metal Cos., The, Rankin, Pa.
 Expanded Metal Safety Guard Co., Lon Island City, N. Y.
 Ludlow-Sayler Wire Co., The, St. Louis, Mo.

GUARDS, Saw Table

Atkins & Co., E. C., Inc., Indianapolis, Ind.
 Grammes & Sons, L. F., Allentown, Pa.
 Montgomery & Co., 105 Fulton St., New York
 Zeiller & Nagel, 232 Java St., Brooklyn, N. Y.

GUTTA PERCHA

Goodrich Co., B. F., Akron, Ohio
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Manhattan Rubber Mfg Co., Passaic, N. J.
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

GYROSCOPIC COMPASSES (See Compasses, Gyro)**GYROSCOPIC STABILIZERS (See Stabilizers)****H****HACKSAWS & FRAMES, Hand**

Atkins & Co., E. C., Indianapolis, Ind.
 Alston Saw & Steel Co., Folcroft, Pa.
 Burgess Norton Mfg Co., Geneva, Ill.
 Chandler Farquhar Co., 32 Federal St., Boston
 Crerar Adams Co., Erie St. & Fairbanks, Chicago
 Davis Hunt Colister Hdwe Co., 2062 Ontario St., Cleveland
 Diamond Saw & Stamp Works, Buffalo
 Dikeman Manufacturing Co., Norwalk, Conn.
 Disston & Sons, Inc., Henry, Philadelphia
 Fairbanks Co., 416 Broome St., New York
 Garrison Brass & Mach Wks, 107 W. 13th St., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Grover File Co., Nashua, N. H.
 Handlan Burk Mfg Co., 212 N. 3d St., St. Louis, Mo.
 Harris & Co., Samuel, Chicago
 Holbrook, Merrill & Stetson, 6th & Bluxome Sts., San Francisco
 Holt & Co., G. L., 550 Asylum St., Hartford, Conn.
 Irvington Manufacturing Co., The, Irvington, N. J.
 Joe Burr's Hardware Co., Savannah, Ga.
 Keene & Co., Inc., W. R., 90 West Broadway, New York
 Kiedel & Co., Henry, Baltimore
 Lutz File Co., 806 Broadway, Cincinnati
 Machinists' Supply Co., Pittsburgh
 Maddock & Co., 42 N. 6th St., Philadelphia
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Man-Sherwood Supply Co., 1616 W. 3d St., Cleveland
 Marshall-Wells Co., Duluth, Minn.
 Millers Falls Co., Millers Falls, Mass.
 Montgomery & Co., Inc., 105 Fulton St., New York
 Napier Saw Works, Inc., Springfield, Mass.
 Oldham, N. Y., Saw Works, 112 26th St., Brooklyn, N. Y.
 Pennsylvania Hardware Co., Reading, Pa.
 Shapleigh Hardware Co., St. Louis, Mo.
 Simmons Hardware Co., 423 Arch St., Philadelphia
 Simonds Manufacturing Co., 55 North St., Fitchburg, Mass.
 Smith & Hemenway Co., Irvington Center, N. J.
 Standard Plumbing Supply Co., 159th St. & St. Anns Av., New York
 Starrett & Co., L. S., Athol, Mass.
 Sterling Products Co., 549 Washington Blvd., Chicago
 Strelinger & Co., Chas. A., 43-51 Larned St., E., Detroit
 Thompson & Son Co., The Henry, New Haven, Conn.
 Turner, Inc., A. C., Pittsburgh
 Union Hardware Co., Torrington, Conn.
 Walls Tool & Supply Co., Inc., T. P., 77 Walker St., New York
 West Haven Manufacturing Co., New Haven, Conn.
 Whitaker Manufacturing Co., 409 S. Green St., Chicago
 Worthington Co., G., 802 42d St. & Clair Av., Cleveland

HACKMATAK (See Knees)**HACKSAWS, Power**

Armstrong-Blum Mfg Co., N. Francisco Av., Chicago
 Atkins & Co., E. C., Indianapolis, Ind.
 Millers Falls Co., Millers Falls, Mass.
 Napier Saw Works, Inc., Springfield, Mass.
 Racine Tool & Machine Co., Racine, Wis.
 Thompson & Son Co., The Henry G., New Haven, Conn.
 West Haven Manufacturing Co., New Haven, Conn.

HALLIARDS, SIGNAL, Etc., Hemp & Flax

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbian Rope Co., Auburn, N. Y.
 Filter Edwin H., Philadelphia
 Kelly Co., Henry C., 35 Worth St., New York
 Linen Thread Co., 96 Franklin St., New York
 MacWhite Co., Kenosha, Wis.
 Plymouth Cordage Co., No. Plymouth, Mass.
 Samson Cordage Co., Boston
 Turner & Stanton, Norwich, Conn.
 Wall Rope Works, 48 South St., New York

HAMMERS, Belt & Motor Driven

Beaudry & Co., Inc., Boston
 Bradley & Son, C. C., Syracuse, N. Y.

Long & Allstatter Co., The, Hamilton, Ohio
 Little Giant Co., Mankato, Minn.
 Nazel Engineering & Mach Wks, Philadelphia
 Toledo Machine & Tool Co., Toledo, Ohio
HAMMERS, Caulking & Chipping, Pneumatic
 Chicago Pneumatic Tool Co., 6 E. 44th New York
 Cleveland Pneumatic Tool Co., Cleveland
 Dayton Pneumatic Tool Co., Dayton, Ohio
General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hanna Engineering Works, 1765 Elston Av., Chicago
 Independent Pneumatic Tool Co., 1307 Michigan Av., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Oldham & Sons Co., Geo., Frankford, Pa.
 Pittsburgh Pneumatic Tool Co., Canton, Ohio

HAMMERS, Copper

Anderson Supply Co., N. H., Detroit, Mich.
 Cheney Hammer Corp, Henry, Little Falls, N. Y.
 Clendenin Bros., 220 Broadway, New York
 Electric Materials Co., North East, Pa.
 Eureka Co., North East, Pa.
 Germantown Tool Works, Philadelphia
 Goodell-Pratt Co. (Brass), Greenfield, Mass.
 Graham & Co., James, New Haven, Conn.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Kemp Machinery Co., Baltimore
 Machinists' Supply Co., Pittsburgh
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 U. S. Indestructible Gasket Co., 50 Church St., New York
 Welch Co., Thos. F., 55 Sudbury St., Boston

HAMMERS, Drop

Bliss Co., E. W., Brooklyn, N. Y.
 Chambersburg Engineering Co., Chambersburg, Pa.
 Cleveland Machine & Mfg Co., Cleveland
 Erie Foundry Co., Erie, Pa.
 Massillon Foundry & Machine Co., Massillon, Ohio
 Miner & Peck Manufacturing Co., New Haven, Conn.
 Morgan Engineering Works, Alliance, Ohio
 Nazel Engineering & Machine Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Toledo Machine & Tool Co., Toledo, Ohio
 United Engineering & Foundry Co., Pittsburgh

HAMMERS, Forging, Pneumatic

Beaudry & Co., Inc., Boston
 Hanna Engineering Works, 1765 Elston Av., Chicago
 Massillon Foundry & Machine Co., The, Massillon, Ohio
 Nazel Engineering & Machine Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York

HAMMERS, Hand, Blacksmith

Boilermaker
 Chipping
 Engineers', Cross Peen
 Engineers', Double Faced
 Machinist, Ball Peen
 Machinist, Straight Peen
 Napping
 Riveting

Cheney Hammer Corp, Henry, Little Falls, N. Y.
 Crerar, Adams Co., 409 S. Green St., Chicago
 Fairbanks Co., 416 Broome St., New York
 Germantown Tool Works, Philadelphia
 Hammacher, Schlemmer & Co., 133 4th Av., New York
 Kelly Axe Manufacturing Co., Charleston, W. Va.
 Machinists' Supply Co., Pittsburgh
 Maydole Hammer Co., David, Norwich, N. Y.
 Overton Manufacturing Co. (Chipping), Staatsburgh, N. Y.
 Plumb, Fayette R., Philadelphia
 Rubinow Edge Tool Co., Newark, N. J.
 U. S. Lock & Hardware Co., Columbia, Pa.
 Warner Hammer Co., Cromwell, Conn.
 Whitaker Manufacturing Co., 409 S. Green St., Chicago

HAMMERS, Hyde Faced

Chicago Rawhide Manufacturing Co., Chicago
 Germantown Tool Works, Philadelphia
 Greene Tweed & Co., 109 Duane St., New York
 Holbrook Rawhide Co., Providence, R. I.

Machinist Supply Co., Pittsburgh
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Topping Bros., 122 Chambers St., New York

HAMMERS, Riveting (See Also Hammers, Caulking)

Baird Pneumatic Tool Co., Kansas City, Mo.
 Helwig Manufacturing Co., St. Paul, Minn.
 High Speed Hammer Co., Inc., The, Rochester, N. Y.
 Williams, White & Co., Moline, Ill.

HAMMERS, Steam

Beaudry & Co., Inc., Boston
 Buffalo Foundry & Machine Co., 1545 Filmore Av., Buffalo
 Chambersburg Engineering Co., Chambersburg, Pa.
 Cleveland Machine & Mfg Co., Cleveland
 Erie Foundry Co., Erie, Pa.
 Henes, Louis G., San Francisco
 Herberts Machinery & Supply Co., San Francisco
 Industrial Works, Bay City, Mich.
 Massillon Foundry & Machine Co., Massillon, Ohio
 Morgan Engineering Co., Alliance, Ohio
 Nazel Engineering & Machine Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York

HAMMERS, Tool Dressing & Light Forging

Barr, H. Edsee, Erie, Pa.

HAMMOCKS, Canvas (See Canvas Goods)

HANDLES, Boat Hook, White Ash

Anchor Saw Mills, 253 Broadway, New York
 Banks Co., F. S., 78 Reade, New York
 Bayless Mfg Co., 440 North St., Memphis, Tenn.
 Coston Supply Co., 57 Front St., New York
 De Grauw, Aymer Co., 34 South St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Elias & Bro., G., Elk St., Buffalo, N. Y.
 Estes & Sons, E. B., 362 5th Av., New York
 Fry & Co., L. E., Clayton, N. Y.
 Galbraith & Son, C. C., 117 West New York
 Laughlin Co., The Thos., Portland, Me.
 Marine Mfg & Supply Co., 158 South St., New York
 N. Y. Boat Oar Co., 100 Washington St., New York
 Oshkosh Mfg Co., Oshkosh, Wis.
 Stryker Boat, Oar and Lumber Co., Stryker, Ohio

HANDLES, Chest, Bronze & Iron (See Hinges)

HANDLES, Chisel (See Also Handles, File)

Buschle Sons Mfg Co., 1635 Central Av., Cincinnati
 Greenlee Bros. & Co., Rockford, Ill.
 Hammacher, Schlemmer & Co., 133 4th Av., New York
 Hopper, W. E., Paterson, N. J.
 Long, N. S., Somerville, N. J.
 Piqua Handle Mfg Co., Piqua, Ohio
 Ryther-Purdy Lbr. Co., G. C. T., New York
 Seib Bros., Boyd Av., Jersey City, N. J.
 Swan & Co., James, Seymour, Conn.
 Winstead Edge Tool Works, Winstead, Conn.

HANDLES, Deck, Brush & Squilgee

Barry & Co., D. J., 83 Barclay St., New York
 Brighton Broom & Brush Co., 302 Pearl St., Bklyn., N. Y.
 Brooklyn Broom Works, 495 Flushing Av., Bklyn., N. Y.
 Burton & Co., A. & E., 73 Pearl St., Boston
 Chicago Feather Duster Co., 79 Walker St., New York
 Cleveland Osborn Mfg Co., 5401 Hamilton Av., N. E., Cleveland
 Friedlaender, Paul N., 79 Walker St., New York
 Novelty Turning Co., Norway, Me.
 Ox Fibre Brush Co., 522 Fifth Av., New York
 Patterson, Gottfried & Hunter, 211 Centre St., New York
 Stiles & Co., H. A., Boston

HANDLES, File

Allen, Chas. I., Pequabock, Conn.
 American Woodworking Co., 111 Reade St., New York
 Emmalman Bros, Mfg Co., Indianapolis, Ind.
 Fulkerson Bros. Handle Co., Puxico, Mo.
 Grover File Co., Nashua, N. H.
 Holt Co., G. L., Hartford, Conn.
 Lutz File Co., 806 Broadway, Cincinnati
 McCrillis Handle Co., The, Norwalk, Ohio
 Marsh Mfg Co., Vincennes, Ind.

Meyersdale Handle Co., Meyersdale, Pa.
 Nicholson File Co., Providence, R. I.
 Novelty Turning Co., Norway, Me.
 Osgood Tool Co., J. L., Buffalo, N. Y.
 Standard Turning Works, Cambridge, Mass.
 Strombeck-Becker Mfg Co., Moline, Ill.
 Troy File Works, Troy, N. Y.
 United Handle Mills, 149 Broadway, New York
 Warren Handle Works, Cortland, Ohio
 Windham Handle Co., So. Windham, Conn.

HARDENING POTS, Cyanide & Lead

Johnson, Isaac G., Spuyten Duyvil, N. Y.
 Swedish Crucible Steel Co., Detroit, Mich.

HARDIES, Blacksmiths

Beadly Axe & Tool Co., G. W., Jersey City, N. J.
 Fulkerson Bros. Handle Co., Puxico, Mo.
 Heller Bros. Co., Newark, N. J.
 Iron City Tool Works, 32d & Smallman St., Pittsburgh
 Ivory Handle Co., Hope, Ark.
 Kelly Handle Co., Memphis, Tenn.
 McCrillis Handle Co., The, Norwalk, Ohio
 Plumb, Fayette R., Philadelphia
 Reuther-Scanlon Handle Co., Nashville, Tenn.
 Shunk Mfg Co., Bucyrus, Ohio
 Tatum & Son, J. B., Putnam, Conn.
 Vaughn & Bushnell, Chicago
 Warren Tool & Forge Co., Warren, Ohio
 Windham Handle Co., So. Windham, Conn.

HARDWARE, Marine

Bailey-Lebby Co., The, Charleston, S. C.
 Bridgeport Brass Co., Bridgeport, Conn.
 Carpenter & Co., Geo. B., Chicago
 Doud-MacFarlane Machinery Co., Tacoma, Wash.
 Ducommon Hdwe Co., 656 Townsend St., San Francisco
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Ferdinand & Co., L. W., 152 Kneeland St., Boston
 Greene Co., C. W., Tampa, Fla.
 Harris Engineering Co., Bridgeport, Conn.
 Kainer & Co., 761 Mather St., Chicago
 Kirk & Habicht, 108 S. Calvert St., Baltimore, Md.
 Laughlin & Co., The Thos., 143 Fore St., Portland, Me.
 Malleable Iron Fittings Co., Branford, Conn.
 Marine Hardware Equipment Co., S. Portland, Me.
 Marine Supply Co., Pier 1, Seattle
 Marwedel, C. W., 71 First St., San Francisco
 Menge Marine Hardware & Supply Co., New Orleans, La.
 Pacific Block & Forging Co., 224 Spear St., San Francisco
 Pacific Net & Twine Co., Seattle, Wash.
 Rostand Manufacturing Co., The, Milford, Conn.
 Stevens-Aylsworth Co., 253 Broadway, New York
 Thacher Propeller & Foundry Corp, Albany, N. Y.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 124 Chambers St., New York
 Ulster Foundry Corp, Kingston, N. Y.
 Upson-Walton Co., Cleveland
 Western Forge & Mfg Co., Los Angeles, Cal.
 Wilcox, Crittenden & Co., Middletown, Conn.
 Williams & Co., Wm. E., 62 Front St., New York
 Woodward, Wight & Co., New Orleans, La.
 (See also Ship Chandlers, Port Data Section)

HARDWOOD (See Specific Heading)**HASPS & STAPLES, Brass, Bronze & Steel (See Hinges)****HAWSERS, Hemp**

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbian Rope Co., Auburn, N. Y.
 Filter Co., Edwin H., 517 Arch St., Philadelphia
 Jackson & Sons Rope Co., T., Reading, Pa.
 MacWhite Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle, Wash.
 Plymouth Cordage Co., North Plymouth, Mass.
 Rinck Cordage Co., Easton, Pa.
 Rugg Co., E. L., Newark, Ohio
 Wall Rope Mfg. Co., Beverly, N. J.
 Whitlock Cordage Co., 46 South St., New York, see p. 27

HAWSERS, Manila

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbia Rope Co., Auburn, N. Y.
 Filter Co., Edwin H., 517 Arch St., Philadelphia
 Kelly Co., The R. A., Xenia, Ohio
 MacWhite Co., Kenosha, Wis.
 Marine Supply Co., Pier 1, Seattle, Wash.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle, Wash.
 Plymouth Cordage Co., North Plymouth, Mass.
 Portland Cordage Co., Portland, Ore.
 Tubbs Cordage Co., San Francisco
 Wall Rope Works, 48 South St., New York
 Waterbury Co., 63 Park Row, New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

HAWSERS, Wire, Steel

Broderick & Bascom, 805 N. Main St., St. Louis, Mo.
 Hazard Mfg Co., Wilkes-Barre, Pa.
 Leschen & Sons Rope Co., A., St. Louis, Mo.
 MacWhite Co., Kenosha, Wis.
 Mersick & Co., C. S., New Haven, Conn.
 Moon Co., Geo. C., Garwood, N. J.
 Roeblings Sons Co. of Cal., Jno. A., San Francisco
 Waterbury Co., 63 Park Row, New York
 Williamsport Wire Rope Co., Williamsport, Pa.

HEATERS, Electric (See Coils, Heating, Electric)**HEATERS, Oil (See Oil Heaters)****HEATERS, Water**

Barrett Manufacturing Co., James, 115-21 Pearl St., Boston
 Berglas Mfg Co., M. P., 8 Fulton St., Brooklyn, N. Y.
 Butler & Co., W. F., 80 Pearl St., Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Federal Huber Co., Chicago
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Lehnert & Co., 334 E. 23d St., New York
 McCambridge Co., 315 N. 20th St., Philadelphia
 Mott Iron Works, J. L., Trenton, N. J.
 Robertshaw Manufacturing Co., Youngwood, Pa.
 Sands & Son, A. B., 20 Vesey St., New York
 Speakman Co., Wilmington, Del.
 Yonkers Plumbing Supply Co., 43 Dock St., Yonkers, N. Y.

HEATING & VENTILATING APPARATUS, Combined

American Blower Co., Detroit, Mich.
 Schutte & Koerting Co., Philadelphia
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109

HELMETS, Welding

Davis-Bournonville Co., Jersey City, N. J.
 Hardy & Co., F. A., 15 W. 36th St., New York
 Hayward & Co., S. F., 250 W. 54th St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Merry Optical Co., Kansas City, Mo.
 Meyrowitz, E. B., 520 5th Av., New York
 Oxweld Acetylene Co., Jersey City, N. J.
 Protectus Safety Appliance Co., Newark, N. J.
 Safety First Supply Co., Pittsburgh
 Schwenkler, Inc., W. M., 340 E. 92d St., New York
 Union Metal Mfg Co., Canton, Ohio

HEMLOCK

Arrow Lumber Co., Parkersburg, W. Va.
 Babcock Lumber Co., 43 Wall St., New York
 Bell Bros. Lumber Co., Ft. E. 99th St., New York
 Burke, John F., 29 W. 42d St., New York
 Burritt, A. W., Bridgeport, Conn.
 Coastwise Lumber & Supply Co., 17 Btry Pl., New York
 Cameron Lumber Co., Newburgh, N. Y.
 Dover Lumber Co., Dover, N. J.
 Dutton Lumber Co., A. C., G. C. T., New York
 East River Mill & Lumber Co., 425 E. 92d St., New York
 Elias & Bro., G., 965 Elk St., Buffalo, N. Y.
 Emporium Lbr. Co., G. C. T., New York
 Farrell, G. Frederick, 30 Church St., New York
 Gates & Co., C. E., E. R. & 152d St., New York
 Godfrey Co., L. N., 51 E. 42d St., New York
 Goodyear Lumber Co., Buffalo, N. Y.

Hall Lumber Co., The Thos., Charlestown, W. Va.
 Heinemann Lumber Co., B., Wausau, Wis.
 James & Abbott Co., 155 Milk St., Boston
 Johnson Bros., 45 Classon Av., Brooklyn, N. Y.
 Kalt Lumber Co., 320 E. 64th St., New York
 Lane Co., Chas. E., Parkersburgh, W. Va.
 Luther, T. C., Mechanicville, N. Y.
 Mansfield Hardwood Co. of La., Winnfield, La.
 Maloney & Co., J. A., 1182 Broadway, New York
 National Timber Co., Mobile, Ala.
 Pacific Lumber Co. of Ill (Car load only), 522 5th Av., New York
 Peckham, Wolf & Co., Schenectady, N. Y.
 Sanderson & Co., S. B., Menominee, Mich.
 Stevens-Eaton Co., 1 Madison Av., New York
 Storm & Co., Geo. H., 545 E. 71st St., New York
 Studley Box & Lumber Co., Rochester, N. Y.
 Tennessee Lumber & Coal Co., Cincinnati
 Terry, E. M., 90 West St., New York
 Watson Lbr. Co., Inc., 186 6th St., Brooklyn, N. Y.
 Whitmer & Sons, Inc., Wm., Finance Bldg., Philadelphia
 Williams Co., R. A. & J. J., 22d & York Sts., Philadelphia
 Wyatt-Prock Lbr. Co., Widener Bldg., Philadelphia
 Yates Lumber Co., John B., Pennsboro, W. Va.

HICKORY, Butts

Arrow Lumber Co., Parkersburgh, W. Va.
 Atlantic Lumber Co., Boston
 Barker Bond Lbr. Co., 405 Lex. Av., New York
 Brown Bros. Co., 11 Broadway, New York
 Central Timber Exxport Co., 115 Broadway, New York
 Clarke & Cleale Co., Boston
 Davis Lumber Co., Edw. L., Louisville, Ky.
 Dennis & Co., Thos. S., Kansas City, Mo.
 Elias & Bro., G., 965 Elk St., Buffalo, N. Y.
 Hall Lbr. Co., The Thos., Charlestown, W. Va.
 Lane Co., Chas. E., Parkersburgh, W. Va.
 Maloney & Co., J. A., 1182 Bway, New York
 Mansfield Hardwood Co. of La., Winnfield, La.
 Meeks, L. J., Muncie, Ind.
 Merkel, Wm., Irvington, N. J.
 Mosson Co., M., 558 Flushing Av., Brooklyn, N. Y.
 National Timber Co., Mobile, Ala.
 North Vernon Lbr. Co., North Vernon, Ind.
 Warner Lumber & Equipment Co., Baltimore
 Wyatt-Prock Lbr. Co., Widener Bldg., Philadelphia
 Yates Lbr. Co., John B., Pennsboro, W. Va.,

HICKORY, White (See Also Hickory, Butts)

Curtis Breslin Co., 3290 Atlantic Av., Brooklyn, N. Y.
 Haas Lumber Co., R. L., 233 Broadway, New York
 Hunt, Washington & Smith, Nashville, Tenn.
 Kalt Lumber Co., 320 E. 64th St., New York
 James & Abbott Co., 155 Milk St., Boston
 Luther, T. C., Mechanicville, N. Y.
 Stevens-Eaton Co., 1 Madison Av., New York
 Stimson Veneer & Lumber Co., Memphis, Tenn.
 Walter Lumber Co., H. R., No. Side, Pittsburgh

HICKORY WEDGES

Merkel, Wm., Irvington, N. J.

HINGES, Strap, Brass, Bronze & Steel

Adams & Westlake, 50 Church St., New York
 Brainerd Manufacturing Co., E. Rochester, N. Y.
 Bronson, Homer D., Beacon Falls, Conn.
 Champion Hardware Co., Geneva, Ohio
 Channon Manufacturing Co., Jas. H., 149 Church St., New York
 Chantrell Hardware & Tool Co., 21 Warren St., New York
 Connecticut Hardware Mfg Co., Bridgeport, Conn.
 Corbin, P. & F., New Britain, Conn.
 Dayton Manufacturing Co., Dayton, Ohio
 Dent Hardware Co., Fullerton, Pa.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Eastern Sales Co., 45 Warren St., New York
 Ford Pulley & Hardware Co., 25 W. 45th St., New York
 Galbraith & Son, C. C., 117 West St., New York
 Gould Mercereau Co., 52 W. 38th St., New York
 Grammes & Sons, L. F., 1917 Union St., Allentown, Pa.
 Grand Rapids Brass Co., Grand Rapids, Mich.
 Loeffholz & Co., 170 Clinton St., Milwaukee, Wis.

New York Iron & Steel Prod. Co., 143 Chambers St., New York
 Norwalk Lock Co., So. Norwalk, Conn.
 Sargent & Co., 94 Center St., New York
 Scoville Manufacturing Co., Waterbury, Conn.
 Simmons Hardware Co., St. Louis, Mo.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Western Brass Mfg Co., 2007 Marshall Blvd., Chicago
 Winchester Brass & Copper Co., Winsted, Conn.

HOISTING ENGINES

American Hoist & Derrick Co., St. Paul, Minn.
 Brown Hoisting Machine Co., The, Cleveland
 Chase Machine Co., The, Cleveland
 Chisholm-Moore Manufacturing Co., Cleveland
 Clyde Iron Works, Duluth, Minn.
 Cullen, Wm. J., 30 Church St., New York
 Dake Engine Co., Grand Haven, Mich.
 Dooley-Killian Co., 26 Cortlandt St., New York
 Erie Hoist Co., Erie, Pa.
 Flory Manufacturing Co., S., Bangor, Pa.
 Holmes & Bros., Robt., Danville, Ill.
 Kelley Co., E. B., G. C. T., New York
 Lidgerwood Manufacturing Co., 96 Liberty St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Mundy Hoisting Engine Co., J. S., Newark, N. J.
 National Hoisting Engine Co., Harrison, N. J.
 Orr & Sembower, Inc., Reading, Pa.
 Vulcan Iron Works, Wilkes-Barre, Pa.
 Williamson Bros. Co., Philadelphia

HOISTS, Air

Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Coburn Trolley Track Mfg Co., Holyoke, Mass.
 Dake Engine Co., Grand Haven, Mich.
 Detroit Hoist & Machine Co., Detroit, Mich.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Great Lakes Engineering Works, 5 Nassau St., New York
 Detroit Hoist & Machine Co., Detroit, Mich.
 Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Nordberg Manufacturing Co., Milwaukee, Wis.
 Rix Compressed Air & Drill Co., Inc., 505 Howard St., San Francisco, see p. 1

HOISTS, Chain & Block (See Also Blocks, Differential)

American Hoist & Derrick Co., St. Paul, Minn.
 Browning & Co., Victor R., Cleveland
 Chisholm-Moore Mfg Co., The, Cleveland
 Eccles & Smith Co., The, 71 First St., San Francisco
 Ford Chain Block Co., 2d & Diamond Sts., Philadelphia
 Ford & Geirrine Co., Merchants' Exchange Bldg., San Francisco
 Henes, Louis G., San Francisco
 Herbert's Machy & Supply Co., 168 2d St., San Francisco
 Hesse-Martin Iron Works, Portland, Ore.
 Hobbs Co., Clinton E., 33 Pearl St., Boston
 Llewellyn Iron Works, Los Angeles
 Parish Supply & Mfg Co., 2856 Quinn St., Chicago
 Salisbury Foundry & Machine Co., Salisbury, Md.
 Smith-Booth-Usher, 50 Fremont St., San Francisco
 Wright Manufacturing Co., Lisbon, Ohio

HOISTS, Electric (Also See Lifting Magnets)

Alliance Machine Co., Alliance, Ohio
 American Hoist & Derrick Co., St. Paul, Minn.
 Box & Co., Inc., Alfred, Philadelphia
 Brown Hoisting Machine Co., The, Cleveland
 Champion Engineering Co., The, Kenton, Ohio
 Cleveland Crane & Engr. Co., Wickliffe, Ohio
 Clyde Iron Works, Duluth, Minn.
 Coburn Trolley Track Co., Holyoke, Mass.
 Collins-Ferguson Co., Seattle, Wash.
 Eccles & Smith Co., The, 71 First St., San Francisco
 Fairbanks Morse & Co., 920 Wabash Av., Chicago
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Henes, Louis G., San Francisco
 Herbert's Machinery & Supply Co., San Francisco
 Lidgerwood Manufacturing Co., 96 Liberty St., New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Milwaukee Electric Crane & Mfg Co., Milwaukee, Wis.

New Jersey Foundry & Machine Co., 90 West St., New York

Niles-Bement-Pond Co., 111 Broadway, New York
 Nordberg Manufacturing Co., Milwaukee, Wis.
 Northern Engineering Works, Milwaukee, Wis.
 Pawling & Harnishfeger, Milwaukee, Wis.
 Reading Chain & Block Corp., Reading, Pa.
 Shaw Electric Crane Co., Muskegon, Mich.
 Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.
 Smith-Booth-Usher, San Francisco
 Washington Iron Works, Seattle, Wash.
 Western Electric Co., 151 Fifth Av., New York
 Whiting Foundry & Equipment Co., Harvey, Ill.

HOISTS, Mono-Rail

Box & Co., Inc., Alfred, Philadelphia
 Brown Hoisting Machinery Co., Cleveland
 Coburn Trolley Track Mfg Co., Holyoke, Mass.
 New Jersey Fdry & Machine Co., 90 West St., New York
 Northern Engineering Works, Detroit, Mich.
 Philadelphia Tramrail Co., Philadelphia
 Reading Chain & Block Co., Reading, Pa.
 Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

HOLDERS, Tool

American Tool & Machine Co., Boston.
 Armstrong Bros., Tool Co., Chicago
 Bausch Machine Tool Co., Springfield, Mass.
 Braunsdorf-Mueller, Elizabeth, N. J.
 Browne & Sharpe, Providence, R. I.
 Cleveland Twist Drill Co., Cleveland
 Fairbanks Co., 416 Broome St., New York
 Gisholt Machine Co., Madison, Wis.
 Keystone Equipment Co., Philadelphia
 Lovejoy Tool Works, Chicago
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Marvin & Casler Co., Canastota, N. Y.
 Modern Tool Co., Erie, Pa.
 O. K. Tool Holder Co., Shelton, Conn.
 Pratt & Whitney, Hartford, Conn.
 Ready Tool Co., Bridgeport, Conn.
 Taft-Pierce Mfg Co., The, Woonsocket, R. I.
 Union Tool Co., Orange, Mass.
 Western Tool & Mfg Co., Springfield, Ohio
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

HOLDERS-ON, Pneumatic

Baird Pneumatic Tool Co., Kansas City, Mo.
 Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Oldham & Son Co., George, Frankford, Philadelphia,
 see p. 94

HOOKS, Cargo

American Chain Co., Inc., Bridgeport, Conn, see pp. 16 & 17
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Marine Decking & Supply Co., Philadelphia
 Marine Hardware Equipment Co., South Portland, Maine
 Seattle Chain Co., Seattle, Wash.
 United States Chain & Forging Co., Union Arcade,
 Pittsburgh, see p. 15
 (See also Ship Chandlers, Port Data Section)

HOOKS, Chain

Alder Co., Benj. S., 45 Warren St., New York
 Brombacker & Co., A. F., 31 Fulton St., New York
 Channon Mfg Co., Jas. H., Chicago
 Dixie Logging Tool Co., Chattanooga, Tenn.
 Eberhard Mfg Co., Cleveland
 Flint & Chester, 2 South St., New York
 Gerdes & Co., 30 Church St., New York
 Kurzon, Chas., off 159 E. Houston St., New York
 Laughlin Co., The Thos., Portland, Me.
 Leibfried, C. H., 97 Guernsey St., Brooklyn, N. Y.
 Lundstrom Tool, Die & Gage Co., Bridgeport, Conn.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Oliver Iron & Steel Co., Pittsburgh
 Oshkosh Mfg Co., Oshkosh, Wis.

Topping Bros., 122 Chambers St., New York
 Vulcan Tool Co., Quincy, Mass.
 Wilcox, Crittenden & Co., Middletown, Conn.

HORIZONS, Artificial

Keuffel & Esser, Hoboken, N. J.
 Makepeace, Inc., B. L., 387 Wash. St., Boston
 Mayer & Bros., Jos., Seattle, Wash.
 Nautical Inst. Mfg Co., 47 West St., New York
 Precision Ther. & Inst. Co., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Rieker Instrument Co., Philadelphia
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Weule Co., Louis, 6 Calif. St., San Francisco

HOSE, Air, Rubber, Armoured with Fittings

Cincinnati Rubber Mfg Co., Franklin Av., Norwood, Conn.
 Cleveland Pneumatic Tool Co., 6410 Hawthorne Av.,
 Cleveland
 Flexible Armoured Hose Co., 752 Main St., Buffalo, N. Y.
 Judd & Leland Manufacturing Co., Clifton Spring, N. Y.
 Manhattan Metal Hose Co., 509 W. 45th St., New York
 Mulconroy Co., Inc., 150 Chambers St., New York
 Oldham & Son Co., George, Frankford, Philadelphia,
 see p. 94

(See also Hose, Air, Rubber, without Cotton or Wire Cover)

HOSE, Air, Rubber, Without Cotton or Wire Cover and Without Fittings

Air Rubber, Armoured with Fittings
 Barley-Lebby Co., Charleston, S. C.
 Belmont Pack. & Rubber Co., 99 Chambers St., New York
 Boston Belting Co., 80 Elmwood St., Boston
 Boston Woven Hose & Rubber Co., Cambridge, Mass.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rub. Wks, 154 Nassau St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Rubber Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., The, Akron, Ohio
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Hewitt Rubber Co., 240 Kensington Av., Buffalo, N. Y.
 Ingersoll-Rand Co., 11 Broadway, New York
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 N. Y. Rubber Co., 84 Reade St., New York
 Quaker City Rubber Co., 629 Market St., Philadelphia
 Republic Rubber Co., 149 Broadway, New York
 Schraeder's Son, A., 783 Atlantic Av., Brooklyn, N. Y.
 Thermoid Rubber Co., Trenton, N. J.
 United Glove Rubber Co., 120 Broadway, New York
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Voorhees Rubber Mfg Co., Jersey City, N. J.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

HOSE, Fire, Cotton, Rubber Lined

Fire, Rubber, Canvas Laid
 Wash Deck & Engineers, Rubber, Canvas Laid
 Wash Deck, Rubber

Acme Rubber Manufacturing Co., Trenton, N. J.
 American Hard Rubber Co., 11 Mercer St., New York
 American LaFrance Erie Engine Co., Elmira, N. Y.
 American Rubber Manufacturing Co., Emeryville, Cal.
 Bailey-Lebby Co., Charleston, S. C.
 Belmont Packing & Rubber Co., Philadelphia
 Boston Woven Hose & Rubber Co., Cambridge, Mass.
 Bowers Rubber Works, San Francisco
 Bronner Co., E. H., 19 Park Place, New York
 Castle, Inc., James M., Philadelphia
 Cincinnati Rubber Co., Cincinnati
 Continental Rubber Co., Erie, Pa.
 Dominion Asbes. & Rub. Corp., 154 Nassau St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Fabric Fire Hose Co., Sandv Hook, Conn.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54

STERLING-COOPER CO., NEW YORK

Goodrich Rubber Co., The B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Hayward & Co., S. F., 250 W. 54th St., New York
 Hewitt Rubber Co., 240 Kensington Av., Buffalo
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Lockett & Co., A. M., New Orleans, La.
 Manhattan Rubber Mfg. Co., Passaic, N. J.
 Neider's Sons, Inc., Chas., 10 James St., Malden, Mass.
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Car Spring & Rubber Co., Inc., Jersey City, N. J.
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

New York Rubber Co., 84 Reade St., New York
 Ohio Rubber Co., Cleveland
 Palmer Equipment Co., Chicago
 Plant Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., Philadelphia
 Republic Rubber Co., of N. Y., 149 Broadway, New York
 Rex Harris Fire Appliance Co., 312 W. 39th St., New York
 Rowe & Son, Inc., A. C., 78 Reade St., New York
 Schrader's Son, A., 783 Atlantic Av., Brooklyn, N. Y.
United States Rubber Co., 1790 Broadway, New York, see p. 57
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.
 Woodhouse Mfg Co., 64 W. Broadway, New York

HOSE, Fire, Linen, Unlined

Barley-Lebby Co., Charleston, S. C.
 Bronner Co., E. H., 19 Park Place, New York
Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Hayward & Co., S. F., 250 W. 54th St., New York
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 Quaker City Rubber Co., 629 Market St., Philadelphia
United States Rubber Co., 1790 Broadway, New York, see p. 57
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.
 Woodhouse Mfg Co., 64 West Broadway, New York

HOSE, Fuel Oil, Steel, Galvanized, Flexible

American Metal Hose Co., Waterbury, Conn.
 Atlantic Metal Hose Co., Inc., 311 W. 59th St., New York
 Belmont Pack. & Rub. Co., 99 Chambers St., New York
 Breeze Manufacturing Co., 250 South St., Newark, N. J.
 Cincinnati Rubber Mfg Co., Franklin Av., Norwood, Cincinnati
 Continental Rubber Works, 41 Warren St., New York
 Danubil Co., 253 Broadway, New York
 Dewes Co., A., 199 Lafayette St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Flexible Armoured Hose Co., 752 Main St., Buffalo, N. Y.
Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Hewitt Rubber Co., 240 Kensington Av., Buffalo, N. Y.
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Manhattan Metal Hose Co., 509 W. 45th St., New York
 Metal Hose & Tubing Co., 253 Tillary St., Brooklyn, N. Y.
 Mulconroy Co., Inc., 150 Chambers St., New York
 Penn. Flexible & Metallic Tubing Co., Philadelphia
 Strong Machinery & Supply Co., 21 Walker St., New York
 United Globe Rubber Co., 120 Broadway, New York
United States Rubber Co., 1790 Broadway, New York, see p. 57
 United Metal Hose Co., 532 W. 22d St., New York
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

HOSE, Gas, Acetylene, Etc.

Cincinnati Rubber Mfg. Co., Franklin Av., Norwood, Cincinnati
 Croker Nat. Fire Prev. & Eng. Co., 1270 B'way, New York
 Dominion Asbestos & Rub. Co., 154 Nassau St., New York
 Goodyear Tire & Rubber Co., Akron, Ohio
 K-G Weld. & Cutting Co., Inc., 556 W. 34th St., New York
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
United States Rubber Co., 1790 Broadway, New York, see p. 57

Waterhouse Welding Co., 15 Pelham St., Boston
(See also Cutting & Welding Supplies, Gas)

HOSE, Metallic, Flexible

American Metal Hose Co., The, Waterbury, Conn.
 Atlantic Metal Hose Co., 311 W. 59th St., New York
 Dewes Co., A., 199 Lafayette St., New York
 Penn. Flexible Metallic Tubing Co., Philadelphia
 Titeflex Metal Hose Corp., Newark, N. J.
 United Metal Hose Co., 532 W. 22d St., New York
 U. S. Flexible Metal Tubing Co., San Francisco

HOSE, Oil (See Hose, Steam & Oil, Also Hose, Fuel Oil)

HOSE, Rubber, Wire Wound

Steam, Rubber, Canvas Laid, Wire Wound
Suction, Rubber, Canvas Laid, Metal Re-inforced
 Belmont Pack. & Rubber Co., 99 Chambers St., New York
 Boston Belting Co., 80 Elmwood St., Boston
 Boston Woven Hose & Rubber Co., Cambridge, Mass.
 Bronner Co., E. H., 19 Park Place, New York
 Cincinnati Rubber Mfg Co., Franklin Av., Norwood, Cincinnati
 Continental Rubber Works, 41 Warren St., New York
 Dominion Asbestos & Rub. Wks, 154 Nassau St., New York
 Durst Manufacturing Co., 105 Chambers St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Flexible Armoured Hose Co., 752 Main St., Buffalo, N. Y.
Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
 Hewitt Rubber Co., 240 Kensington Av., Buffalo, N. Y.
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 N. Y. Rubber Co., 84 Reade St., New York
 Quaker City Rubber Co., 629 Market St., Philadelphia
 Republic Rubber Co., 149 Broadway, New York
 Thermoid Rubber Co., Trenton, N. J.
 United Globe Rubber Co., 120 Broadway, New York
United States Rubber Co., 1790 Broadway, New York, see p. 57
 Voorhees Rubber Mfg Co., Jersey City, N. J.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

HOSE, Steam & Oil

American Metal Hose Co., The, Waterbury, Conn.
 Boston Woven Hose Co., Cambridge, Mass.
 Dewes Co., A., 199 Lafayette St., New York
 Flexible Armoured Hose Co., 752 Main St., Buffalo
Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Rubber Co., The B. F., Akron, Ohio
 Manhattan Rubber Mfg Co., Passaic, N. J.
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 New York Rubber Co., 84 Reade St., New York
 Penn. Flexible & Metallic Tubing Co., Philadelphia
 Quaker City Rubber Co., Philadelphia
 United Metal Hose Co., 532 W. 22d St., New York
United States Rubber Co., 1790 Broadway, New York, see p. 57
(See also Hose Rubber, Wire Wound, Also Hose, Steam & Oil, Copper)

HOSE, Steam & Oil, Copper, Flexible

American Metal Hose Co., Waterbury, Conn.
 Atlantic Metal Hose Co., 311 W. 59th St., New York
 Boston Belting Co., 80 Elmwood St., Boston
 Breeze Manufacturing Co., 250 South St., Newark, N. J.
 Danubil Co., 253 Broadway, New York
 Dewes Co., A., 199 Lafayette St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Flexible Armoured Hose Co., 752 Main St., Buffalo, N. Y.
 Gutta Percha & Rubber Mfg Co., P. O. Box 485, City Hall, New York
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston

Manhattan Metal Hose Co., 509 W. 45th St., New York
 Mulconroy Co., 150 Chambers St., New York
 Penn. Flexible & Metallic Tubing Co., Philadelphia
 Republic Rubber Co., 149 Broadway, New York
 Strong Machinery & Supply Co., 21 Walker St., New York
 United Metal Hose Co., 532 W. 22d St., New York
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

HOSE, Suction (See Hose, Rubber, Wire Wound)

HOSE, Twin, Fire

Belmont Pack. & Rubber Co., 99 Chambers St., New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York

Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodyear Tire & Rubber Co., Akron, Ohio
 Knowlton Rubber Co., Geo W., 60 Pearl St., Boston
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55

N. Y. Rubber Co., 84 Reade St., New York
 Republic Rubber Co., 149 Broadway, New York
 A. Schraeder's Son, Inc., 783 Atlantic Av., Brooklyn, N. Y.
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

Voorhees Rubber Mfg Co., Jersey City, N. J.

HOSE, Wrecking

Acme Rubber Mfg Co., Trenton, N. J.
 Belmont Pack. & Rubber Co., 99 Chambers St., New York
 Flexible Armoured Hose Co., 752 Main St., Buffalo, N. Y.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 N. J. Car Spring & Rubber Co., Wayne & Brunswick Sts.,
 Jersey City, N. J.

New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55

Quaker City Rubber Co., 629 Market St., Philadelphia
 Republic Rubber Co., 149 Broadway, New York
 United Metal Hose Co., 532 W. 22d St., New York
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

Voorhees Rubber Mfg Co., Jersey City, N. J.

HOSE COUPLINGS, Air

Atlas Brass Manufacturing Co., Cleveland
 Chicago Pneumatic Tool Co., 106 E. 44th St., New York
 Cleveland Pneumatic Tool Co., 6410 Hawthorne Av.,
 Cleveland

Eccles & Smith Co., San Francisco
 Danubil Co., The, 253 Broadway, New York
 Elkhart Brass Manufacturing Co., Elkhart, Ind.
 Empire Rubber & Tire Co., 240 W. 45th St., New York
 Glauber Brass Manufacturing Co., Superior Av. & 49th St.,
 Cleveland

Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodyear Tire & Rubber Co., 123 W. 64th St., New York
 Haydenville Co., The, Haydenville, Mass.
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 McNab & Harlin Mfg Co., 55 John St., New York
 Morse & Son, A. G., 221 High St., Boston
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55

N. Y. Brass Foundry Co., 450 Broome St., New York
 N. Y. Rubber Co., 84 Reade St., New York
 Schraeder's Son, Inc., A., 783 Atlantic Av., Brooklyn, N. Y.
 Sherman Manufacturing Co., H. B., Battle Creek, Mich.
 Turbine Air Tool Co., Cleveland
 United Globe Rubber Co., 120 Broadway, New York
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

White Manufacturing Co., J. H., 111 N. 3d St., Bklyn, N. Y.
 Wing & Co., J. T., 19 Woodward Av., Detroit

HOSE COUPLINGS, Fire

Wash Deck

Allen Fire Dept. Supply Co., 43 Murray St., New York
 Atlas Brass Manufacturing Co., Cleveland
 Bailey-Lebby Co., Charleston, S. C.
 Danubil Co., 253 Broadway, New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Elkhart Brass Manufacturing Co., Elkhart, Ind.
 Empire Rubber & Tire Co., 240 W. 45th St., New York
 Farnam Brass Works, 1104 Center St., Cleveland
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodyear Tire & Rubber Co., 123 W. 64th St., New York
 McNab & Harlin Mfg Co., 55 John St., New York
 Morse & Son, A. G., 221 High St., Boston
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 N. Y. Rubber Co., 84 Reade St., New York
 Schraeder's Son, Inc., A., 783 Atlantic Av., New York
 United Globe Rubber Co., 120 Broadway, New York
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 White Mfg Co., J. H., 111 So. 3d St., Brooklyn, N. Y.
 Woodhouse Mfg Co., 64 West Broadway, New York
 Wing & Co., J. T., 19 Woodward Av., Detroit

HOSE FITTINGS (Bands, Clamps, Couplings, Nozzles)

Blackburn-Smith Corp, 105 W. 40th St., New York
 Clafin & Co., Chas. A., Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Ingersoll-Rand Co., 11 Broadway, New York
 Kelly & Jones Co., Greensburg, Pa.
 Knox Manufacturing Co., Philadelphia
 Morse & Son, Inc., Andrew J., Boston
 Westinghouse Traction Brake Co., Wilmerding, Pa.

HYDRAULIC LEATHERS (See Packing, Hydraulic)

HYDROGEN GAS

Air Reduction Sales Co., 120 Broadway, New York
 Burdett Oxygen Co., Detroit, Mich.
 Burdett Oxygen Co., Philadelphia
 California Burdett Oxygen Co., Oakland, Cal.
 Clarke Chemical Co., Wickliffe, Ohio
 International Oxygen Co., Newark, N. J.
 Metals Welding Co., Cleveland
 National Oxygen Co., Chicago
 Portland Oxygen Hyd. Co., Portland, Ore.
 St. Louis Oxygen Co., St. Louis, Mo.
 Standard Oxygen Co., Hoboken, N. J.
 Washington Burdett Oxygen Co., Seattle, Wash.

HYDROGEN GENERATORS

Electrolabs Co., The, Pittsburgh
 International Oxygen Co., Hoboken, N. J.
 (See also Cutting & Welding Supplies, Gas)

HYDROMETERS, Glass

Alpha Lamp Glass & Brass Co., 79 Chambers St., New York
 American Thermo Ware Co., 16 Warren St., New York
 Berg Mfg Co., The James, 3702 12th Av., Brooklyn, N. Y.
 Hiegersell Brothers, 2007 Bellevue Av., Philadelphia
 Lenz Apparatus Co., Inc., 18 E. 16th St., New York
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Reynolds, Teschner & Valk Co., Inc., Vesey St., New York

HYGROMETERS

Bristol Co., The, Waterbury, Conn.
 Brown Instrument Co., Philadelphia
 Griebel Instrument Co., Carbondale, Pa.
 Rieker Instrument Co., 1919 Fairmount Av., Philadelphia
 Schaeffer & Budenberg Mfg Co., 84 B'way, B'klyn, N. Y.
 Scientific Utilities Co., Inc., 84 E. 10th St., New York
 Tagliabue Mfg Co., C. J., 18 33d St., Brooklyn, N. Y.
 Taylor Instrument Co., Rochester, N. Y.

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I

ICE BOXES

Brecht Company, St. Louis, Mo.
 Clothel Refrigerating Co., 61 Broadway, New York, see p. 96
 Gay & Son, C. M., Los Angeles
 National Refrigerator & Mfg Co., St. Louis, Mo.
 Western Refrigerator & Mfg Co., St. Louis, Mo.

ICE DETECTORS

McNab Co., The, Bridgeport, Conn.

ICE MACHINES (See Refrigerating Machinery)**INCLINOMETERS**

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Freas Glass Wks, Inc., F. L., Conshohocken, Pa.
 Keuffel & Esser, Hoboken, N. J.
 Lietz, Co., A., 6 California St., San Francisco
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Nautical Inst. Mfg Co., 47 West St., New York
 Precision Thermometer & Instrument Co., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Rieker Instrument Co., 1919 Fairmount Av., Philadelphia
 Sperry Gyroscope Co., Brooklyn, N. Y.
 Star Compass Co., Dorchester, Mass.
 Starrett Co., L. S., Athol, Mass.
 Taylor Instrument Cos., Rochester, N. Y.

INDICATOR COCKS (See Also Indicators, Engine)

Buckeye Iron & Brass Wks, Dayton, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crosby Steam Gage & Valve Co., Boston
 Loneragan Co., J. E., Philadelphia
 Lunkenheimer Co., Cincinnati
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Powell Co., The Wm., Cincinnati

INDICATOR REDUCING MOTIONS

Nugent & Co., Wm. W., 146 W. Superior St., Chicago

INDICATORS, Ammonia

Trill Indicator Co., Corry, Pa.

INDICATORS, Co.

Foxboro Co., Inc., The, Foxboro, Mass.
 Harger Co., F. D., Buffalo, N. Y.
 Precision Instrument Co., 21 Halsey St., Newark, N. J.
 Uehling Instrument Co., 71 Broadway, New York

INDICATORS, Direction & Speed, Engine

Chadburn Ship Tel. Co. of America, Troy, N. Y.
 Cummings Ship Instrument Works, 10 High St., Boston, see p. 104

Electric Tachometer Corp, The, Philadelphia, see p. 103
 Cory & Son, Inc., Chas., King & Varick Sts., New York
 Henschel & Co., Inc., C. J., 111 Dobbin St., Bklyn., N. Y.
 McNab Company, The, Bridgeport, Conn.
 Schaeffer & Budenberg Mfg Co., 84 B'way, B'klyn, N. Y.

INDICATORS, Engine, Inside & Outside Spring

American Steam Gauge & Valve Co., Boston
 Ashcroft Mfg Co., The, 119 W. 40th St., New York
 Bushnell & Co., John S., 146 Liberty St., New York
 Crosby Steam Gage & Valve Co., Boston
 McRae & Roberts Co., Detroit, Mich.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Robertson & Son, Jas. L., 78 Murray St., New York
 Star Brass Manufacturing Co., Boston
 Thompson & Co., Richard, 187 Greenwich St., New York
 Trill Indicator Co., Corry, Pa.

INDICATORS, Frequency

Biddle, Jas. G., Philidelphia
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Cutler-Hammer Mfg. Co., 50 Church St., New York, see p. 35

General Electric Co., Schenectady, N. Y., see pp. 36-41
 Holtzer-Cabot Electric Co., 125 Amory St., Boston
 Lovell & Co., F. H., Arlington, N. J.
 Westinghouse Electric & Mfg Co., Pittsburgh

INDICATORS, Level, Liquid

Cory & Son, Inc., Chas., Varick & King Sts., New York
 Pneumercator Co., 15 Park Row, New York

INDICATORS, Polarity

American Ever-Ready Wks of Nat. Carbon Co., Long Island City, N. Y.
 Arnessen Electric Co., 109 Broad St., New York
 Central Electric Co., Chicago
 Jewell Electric Instrument Co., Chicago
 Ostrander & Co., W. R., 371 Broadway, New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Stanley & Patterson, West & Hubert Sts., New York
 Western Electric Co., 151 Fifth Av., New York

INDICATORS, Rudder Angle

Cory & Son, Inc., Chas., 183 Varick St., New York
 Henschell & Co., Chas. J., 111 Dobbin St., Brooklyn, N. Y.
 Marine Electric Co., San Francisco

INDICATORS, Sight Flow

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

INDICATORS, Speed (See Tochrometers, Also See Counters)**INDICATORS, Temperature (See Pyrometers & Thermometers)****ILLUMINATION, Industrial (See Also Floodlights)**

Cooper-Hewitt Electric Co., 730 Grand St., Hoboken, N. J.

INJECTORS

American Injector Co., Detroit, Mich.
 Callan, A. C., Portland, Ore.
 Crane Co., 836 So. Michigan Av., Chicago
 Eynon-Evans Manufacturing Co., Philadelphia
 Hancock Inspirator Co., 119 W. 40th St., New York
 Hayden & Darby Mfg Co., 119 W. 40th St., New York
 Jenkins Bros., 80 White St., New York
 Lunkenheimer Co., The, Cincinnati
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Ohio Injector Co., Wadsworth, Ohio
 Penberthy Injector Co., Detroit, Mich.
 Powell Co., The William, Cincinnati
 Schutte & Koerting Co., Philadelphia
 Sellers & Co., Wm., Philadelphia
 Sherwood Manufacturing Co., Buffalo, N. Y.

INSTRUMENTS (See Specific Heading)**INSULATING MATERIALS, Refractory**

Armstrong Cork & Insulating Co., Pittsburgh
 Celite Products Co., 11 Broadway, New York
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 National Magnesia Mfg Co., San Francisco
 Quigley Furnace Specialties Co., The, 26 Cortland St., New York
 Zenitherm Co., Inc., 50 E. 42d St., New York

INSULATION, Cork

Armstrong Cork & Insulation Co., Pittsburgh
 Gay & Son, C. M., Los Angeles
 Livesey Co., Jno. R., Philadelphia
 Mundet & Sons, L., 59 Pearl St., Boston
 Stone, Junius H., 1400 Broadway, New York
 Union Insulating Co., Chicago
 United Cork Cos., Lyndhurst, N. J.

INSULATION, Electrical

American Hard Rubber Co., 11 Mercer St., New York
 American Vulcanized Fibre Co., Wilmington, Del.
 Consumers Rubber Co., Cleveland, Ohio
 Continental Fibre Co., Newark, Del.
 D. & W. Fuse Co., Providence, R. I.
 Diamond State Fibre Co., Bridgeport, Pa.
 Electroze Mfg Co., 70 Washington Av., Brooklyn, N. Y.
 Goodrich Co., B. F., Akron, Ohio
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Sterling Varnish Co., Pittsburgh, Pa.
 U. S. Asbestos Co., Lancaster, Pa.
 Westinghouse Electric & Mfg Co., Pittsburgh

STERLING-COOPER CO., NEW YORK

INSULATION, Mica (See Mica)**INSULATION, Mineral Wool (See Mineral Wool)****INSULATION, Paper**

Irvington Varnish & Insulation Co., Irvington, N. J.
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York

National Fibre & Ins. Co., Yorklyn, Del.
 Paraffin Cos., Inc., The, 34 First St., San Francisco
 Standard Paint Co., 233 Broadway, New York
 Union Insulating Co., Chicago

INSULATION, Porcelain

American Porcelain Co., East Liverpool, Ohio
 Brunt Tile & Porcelain Co., Columbus, Ohio
 Imperial Porcelain Wks, Trenton, N. J.
 Johns-Manville Co., H. W., Madison Av., New York
 Locke Insulating Mfg Co., Victor, N. Y.
 National Porcelain Co., Trenton, N. J.
 Ohio Brass Co., Mansfield, Ohio
 Western Electric Co., 151 Fifth Av., New York

INTER-COMMUNICATING SYSTEMS (See Telephones & Voice Tubes)**IRON, Bar**

Aetna Steel Products Co., 30 Church St., New York
 Altoona Iron Co., Erie, Pa.
 American Rolling Mill Co., Middletown, Ohio
 American Steel & Wire Co., Chicago
 Ames & Co., W., Jersey City, N. J.
 Barnes, Winfield, S., 20th & Erie Av., Philadelphia
 Belmont Iron Works, 2215 Washington Av., Philadelphia
 Bethlehem Steel Corp, Bethlehem, Pa.
 Briggs & Turnivas, Westminster Bldg., Chicago
 Brown & Co., 10th St., Pittsburgh
 Burden Iron Co., Troy, N. Y.
 Camden Forge Co., Camden, N. J.
 Carnegie Steel Co., Pittsburgh
 Central Iron & Metal Co., S. Rockwell St., Chicago
 Emerson Co., Erie, Pa.
 Gehret Bros., Bridgeport, Pa.
 Gulf States Steel Co., Birmingham, Ala.
 Hammond-Byrd Co., Birmingham, Ala.
 Hay Foundry & Iron Wks, 15 Madison Sq., New York
 Heywood Co., Thomas R., Farmers Bank Bldg., Pittsburgh
 Highland Iron & Steel Co., Terre Haute, Ind.
 Hughes & Patterson, 800 Richard St., Philadelphia
 Ingalls Iron Works, Birmingham, Ala.
 Jansen Steel & Iron Co., Columbia, Pa.
 Kansas City Bolt & Nut Co., Kansas City, Mo.
 Kilby Car & Foundry Co., Anniston, Ala.
 Lebanon Valley Iron & Steel Co., Lebanon, Pa.
 Lockport Iron & Steel Co., Pittsburgh
 Lombard Iron Works & Supply Co., Augusta, Ga.
 Midland Bridge Co., Kansas City, Mo.
 Minneapolis Steel & Machine Co., Minneapolis, Minn.
 Morris, Wheeler & Co., 30th & Locust Sts., Philadelphia
 National Rolling Mill Co., Vincennes, Ind.
 Norfolk Hide & Metal Co., Norfolk, Va.
 Old Dominion Iron & Steel Corp, Richmond, Va.
 Oliver Mfg Co., William J., Knoxville, Tenn.
 Pacific Coast Steel Co., Rialto Bldg., San Francisco
 Pacific Rolling Mill Co., 17th & Miss. Sts., San Francisco
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Philadelphia, see p. 18
 Penn. Steel & Iron Corp, Lancaster, Pa.
 Phila. Steel & Iron Co., Commercial Trust Bldg., Philadelphia
 Pittsburgh Forge & Iron Co., Chamber of Com. Bldg., Pittsburgh
 Read-Rittenhouse Co., Philadelphia
 Reading Iron Co., Reading, Pa.
 Sharon Iron & Metal Co., Sharon, Pa.
 Turner, Inc., C. A., 117 3d St., Pittsburgh
 Tyler Tube & Pipe Co., Washington, Pa.
 Ulster Iron Works, Dover, N. J.
 Union Foundry Works, 1427 S. Dearborn St., Chicago
 Wilkoff Co., Youngstown, Ohio
 Wurster & Co., F. W., Buffalo, N. Y.
 Youngstown Sheet & Tube Co., Youngstown, Ohio

IRON, Merchant (See Also Staybolts)

Burden Iron Co., Troy, N. Y.
 Milton Mfg Co., The, Milton, Pa.
 Pardee Steel Corp, Perth Amboy, N. J.
 Penn. Steel & Iron Corp, Lancaster, Pa.
 Stevens & Co., Chas. G., Chicago

IRON, Pig

Bethlehem Steel Co., Bethlehem, Pa.
 Brier Hill Steel Co., Youngstown, Ohio
 Central Iron & Steel Co., Harrisburg, Pa.
 Grant, Robert, 233 Broadway, New York
 Illinois Steel Co., Chicago
 Iron & Ore Corp of America, 11 Broadway, New York
 Marshall & Co., F. W., Philadelphia
 Matlack Coal & Iron Corp, 52 Vanderbilt Av., New York
 Mohr & Son, J. J., Philadelphia
 National Sales & Trading Co., Cleveland
 Rogers, Brown & Co., Cincinnati
 Southern Ferro Alloys Co., Chattanooga, Tenn.
 Tennessee Coal, Iron & RR Co., Birmingham, Ala

IRONS, Calking, Boat & Ship, Wood

Anderson Supply Co., N. H., Detroit, Mich.
 Brombacher & Co., A. F., 31 Fulton St., New York
 Carver Tool Works, Spring Valley, New York
 Diener Mfg Co., G. W., Kinzie & Monticello Av., Chicago
 Drew & Co., Kingston, Mass.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Fairbanks Co., 416 Broome St., New York
 Galbraith & Son, C. C., 117 West St., New York
 Horne & Co., Wm. H., Philadelphia
 Irvington Mfg Co., The, Irvington, N. J.
 Kemp Machinery Co., Baltimore
 Neptune Hardware Mfg Co., New York
 New England Tool Co., Boston
 Stortz & Son, John, Philadelphia
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York

IRONS, Soldering (See Coppers, Soldering)

J

JACKS, Hydraulic

Cumberland Dugan Co., Baltimore
 Dudgeon, Richard, 204 Columbia St., New York
 Duff Manufacturing Co., Pittsburgh
 Henderer's Sons, A. L., Wilmington, Del.
 Joyce-Gridland Co., Dayton, Ohio
 Justice & Co., P. S., 421 Chestnut St., Philadelphia
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Stickney Co., Chas. A., St. Paul, Minn.
 Watson-Stillman Co., 50 Church St., New York

JACKS, Pulling

Channon Mfg Co., Inc., Jas. H., Chicago
 Gracey & Sons Co., R. E., Pittsburgh
 Inter-Continental Machy Corp, 40 Liberty St., New York

JACKS, Screw

Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Dudgeon, Richard, 204 Columbia St., New York
 Duff Manufacturing Co., Pittsburgh
 Fairbanks Co., 416 Broome St., New York
 Herbert's Machinery & Supply Co., San Francisco
 Joyce-Gridland Co., Dayton, Ohio
 Justice & Co., P. S., 421 Chestnut St., Philadelphia
 Lovejoy Tool Works, Chicago
 McKiernan-Terry Drill Co., 15 Park Row, New York
 Millers Falls Co., Millers Falls, Mass.
 Sargent & Co., 94 Centre St., New York
 Topping Bros., 122 Chambers St., New York

STERLING-COOPER CO., NEW YORK

JACKS, Unclassified

Air Device Manufacturing Co., Chicago
 American Skein & Mfg Co., Racine, Wis.
 Baker, Hamilton & Pacific Co., 700 7th St., San Francisco
 Barth Manufacturing Co., Milwaukee, Wis.
 Buda Co., Railway Exch. Bldg., Chicago
 Champan Jack Co., 45th & Lakeside Av., Cleveland
 Channon Mfg Co., Jas. H., 227 W. Erie St., Chicago
 Clayville Fdry. & Machine Co., Inc., Clayville, N. Y.
 Crerar, Adams & Co., 239 W. Erie St., Chicago
 De Weese Co., F. M., Chillicothe, Ohio
 Duff Manufacturing Co., Pittsburgh
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Fairbanks Co., 416 Broome St., New York
 Iron City Products Co., Pittsburgh
 Joyce-Gridland Co., Dayton, Ohio
 Justice & Co., Philip S., 421 Chestnut St., Philadelphia
 Lovejoy Tool Works, 325 W. Ohio St., Chicago
 Norton Co., A. O., Brookline Av., Boston
 Pearson Jack Co., 185 Franklin St., Boston
 Stickney Co., C. A., St. Paul, Minn.
 Templeton, Kenly & Co., Ltd., 1020 S. Central Av., Chicago
 Watson-Stilman Co., 50 Church St., New York
 Wood & Co., R. D., Philadelphia
 Yale & Towne Mfg Co., 9 E. 40th St., New York

JAPAN DRYER (See Paint, Subhead)**JARS, Leyden**

Bunnell & Co., J. H., 32 Park Place, New York
 Cutting & Washington Radio Corp., 6 & 8 W. 48th St.,
 New York, see p. 82
 Electrolytic Art Metal Co., Trenton, N. J.
 Grebe, A. H., 10 Van Wyck Av., Brooklyn, N. Y.
 Macbeth-Evans Glass Co., 19 W. 44th St., New York
 Radio Corporation of America, 233 Broadway, New York,
 see p. 83
 Vacuum Specialty Co., Vineland, N. J.
 Wireless Improvement Co., 81 New St., New York

JARS, Waste, Copper

Beith & Reilly, 2475 Third Av., New York
 Blickman, S., 199 Lafayette St., New York
 Buffalo Manufacturing Co., 199 Clinton St., Buffalo
 Haines, Jones & Cadbury, Philadelphia
 Humphrey Co., Kalamazoo, Mich.
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Klause, Chas., 460 N. 12th St., Philadelphia
 Lehnert & Co., 334 E. 23d St., New York
 McCambridge Co., 315 N. 20th St., Philadelphia
 Messer Co., William, 27 Suffolk St., New York
 National Metal Spinning & Stpg. Co., 176 Grand St., New
 York
 Parker Co., Chas., Meriden, Conn.
 Reliance Metal Spinning & Stamping Co., 160 John St.,
 Brooklyn, N. Y.
 Sands & Son Co., A. B., 20 Vesey St., New York
 Shaw & Co., Jas. M., 25 Duane St., New York
 Speakman Co., Wilmington, Del.
 Standard Tank & Seat Co., Camden, N. J.

JARS, Waste, Earthenware

Beith & Reilly, 2475 Third Av., New York
 Camden Pottery Co., Camden, N. J.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Haines, Jones & Cadbury, Philadelphia
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Keystone Pottery Co., Trenton, N. J.
 Kokomo Sanitary Manufacturing Co., Kokomo, Ind.
 McCambridge Co., 315 N. 20th St., Philadelphia
 Maddock & Sons, J., Trenton, N. J.
 Messer Co., William, 27 Suffolk St., New York
 Mott Iron Works, J. L., Trenton, N. J.
 Robinson Clay Products Co., 2212 Flushing Av., Brooklyn,
 N. Y.
 Sands & Son Co., A. B., 20 Vesey St., New York

Shaw & Co., Jas. H., 25 Duane St., New York
 Speakman Co., Wilmington, Del.
 Standard Sanitary Mfg Co., Pittsburgh
 Trenton Potteries Co., Trenton, N. J.
 Walker Mfg & Supply Co., Detroit, Mich.

JIGS & FIXTURES

Akron Metallic Gasket Co., Akron, Ohio
 Becker Milling Machine Co., Boston
 Columbus Die, Tool & Mach Co., Columbus, Ohio
 Community Mach & Tool Wks, 122 Centre St., New York
 Erie Specialty Co., Erie, Pa.
 Gisholt Machine Co., Madison, Wis.
 Hartford Special Machy Co., Hartford, Conn.
 Marvin Mfg Co., Urbana, Ohio
 Modern Mfg Co., Bridgeport, Conn.
 Sloan & Chase Mfg Co., Newark, N. J.
 Toledo Machine & Tool Co., Toledo, Ohio
 Union Tool Co., Orange, Mass.

JOINTS, Expansion (See Expansion Joints)**JUNIPER POLES**

Bacon & Sons, A. S., Savannah, Ga.
 Barker Bond Lumber Co., 405 Lexington Av., New York
 Conwell & Co., Norfolk, Va.
 East Carolina Lumber Co., New Bern, N. C.
 Elias & Bro., G., 965 Elk St., Buffalo
 Lang, W. S., Somerville, N. J.
 National Timber Co., Mobile, Ala.
 Wvatt Prock Lumber Co., Widener Bldg., Philadelphia

JUTE PACKING

Stratford Oakum Co., George, Jersey City, N. J., see p. 28
 Winne & Son, Inc., Frank W., 237 Market St., Philadelphia

K

KEROSENE ENGINES (See Gasoline Engines)**KETTLES, Galley, Steam Jacketed**

Aluminum Cooking Utensil Co., New Kensington, Pa.
 Badger & Sons, E. B., 63 Pitts St., Boston
 Barth & Son, L., 32 Cooper Sq., New York
 Born Steel Range Co., 517 Huron Rd., Cleveland
 Bucyrus Copper Kettle Works, Bucyrus, Ohio
 Cald Co., Victor V., 217 S. 11th St., Philadelphia
 Camden Copper Works, Inc., Camden, N. J.
 Corcoran & Co., M., 118 N. Fifth Av., Louisville, Ky.
 Detroit Heating & Lighting Co., Detroit, Mich.
 Dougherty & Sons, W. F., 930 Cherry St., Philadelphia
 Geiger & Bush, Bucyrus, Ohio
 Harris & Co., Arthur, 212 W. Curtis St., Chicago
 Illinois Pure Aluminum Co., Lemont, Ill.
 Langenkamp, Indianapolis, Ind.
 Nathan-Dohrmann Co., San Francisco
 Northwestern Steel & Iron Wks, Eau Claire, Wis.
 Sexton Stove & Mfg. Co., P. B., Baltimore
 Stearnes Co., The, S. Michigan Av., Chicago
 Thorne Co., J. S., 20th & Allegheny Av., Philadelphia

KETTLES, Galvanizing

Petroleum Iron Works Co., The, Sharon, Pa.
 Reeves Bros. & Co., Alliance, Ohio
 Wilfong Iron Works Co., M. F., Philadelphia

KETTLES, Pitch, Iron

Aluminum Cooking Utensil Co., New Kensington, Pa.
 Born Steel Range Co., The, Cleveland
 Bucyrus Copper Kettle Works, Bucyrus, Ohio
 Camden Copper Works, Inc., Camden, N. J.
 Detroit Heating & Lighting Co., Detroit, Mich.
 Dougherty & Sons, Wm. F., 930 Cherry St., Philadelphia
 Matt Corcoran & Co., Louisville, Ky.
 Sexton Stove & Mfg Co., P. B., Baltimore, Md.
 Sowers Mfg Co., Buffalo, New York
 Tidewater Iron Works, 70 Dey St., New York
 Tufts, W. B., 94 John St., New York

KEYSEATERS, Portable

Patterson Fdry. & Mach. Co., East Liverpool, Ohio

KEYSEATING MACHINES

Baker Bros., Toledo, Ohio
 Chattanooga Machinery Co., Chattanooga, Tenn.
 Davis Machine Tool Co., Rochester, N. Y.
 Herbert's Machinery & Supply Co., San Francisco
 Lapointe Co., J. N., New London, Conn.
 National Machine Tool Co., Cincinnati
 Newton Machine Tool Co., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pratt & Whitney, Hartford, Conn.

KNEES

Adsit-Ward Lumber Co., Jersey City, N. J.
 Carvin, E. T., 17 Battery Place, New York
 Douglass, Geo., 317 West St., New York
 Elias & Bro. G., 965 Elk St., Buffalo, N. Y.
 Hoskins Lumber Co., J. S., Baltimore
 Kalt Lumber Co., 320 E. 64th St., New York
 Kells Mill & Lumber Co., Inc., Java & Provost Sts., Brooklyn, N. Y.

Maloney & Co., J. A., 1182 Broadway, New York
 Morton, Alex., Jersey City, N. J.
 Rieg Ship-Knee Co., Portland, Ore.
 Southland Steamship Co., Savannah, Ga., see p. 101
 Taylor Lumber Co., The S. K., Mobile, Ala.
 Wyatt-Prock Lumber Co., Widener Bldg., Philadelphia

KNIVES, Drawing

Beadly Axe & Tool Co., G. W., Jersey City, N. J.
 Brombacker & Co., A. F., 31 Fulton St., New York
 Cattaraugus Cutlery Co., Little Valley, N. Y.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Davis, Hunt Colester Hardware Co., Cleveland
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 2 South St., New York
 Graham & Co., John H., 113 Chambers St., New York
 Hammacher, Schlemmer & Co., 133 4th Av., New York
 Jennings & Co., C. E., New Haven, Conn.
 Kurzon, Chas., 159 E. Houston St., New York
 Mack & Co., 100 Browns Race, Rochester, N. Y.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Shapleigh Hardware Co., St. Louis, Mo.
 Surplus, Dunn & Co., 74 Murray St., New York
 Swan & Co., James, Seymour, Conn.
 Washington Cutlery Co., Watertown, Wis.
 White Co., 50 Columbia St., Buffalo, N. Y.
 Winsted Edge Tool Works, Winsted, Conn.

KNIVES, Machine

Atkins & Co., E. C., Indianapolis, Ind.
 Cleveland Knife & Forge Co., Cleveland
 Lancaster Machine & Knife Works, Lancaster, Pa.
 Ohio Knife Co., Cincinnati

KNIVES, Planer

American Knife Co., Baldwinsville, N. Y.
 Hardisty & Co., Station C, Cincinnati
 Lancaster Machine & Knife Works, Lancaster, Pa.

KNIVES, Scraping

American Cutlery Co., 758 Mather St., Chicago
 American Tap & Die Co., Greenfield, Mass.
 Canton Cutlery Co., Canton, Ohio
 Cattaraugus Cutlery Co., Little Valley, N. Y.
 Flint & Chester, 2 South St., New York
 Harrington Cutlery Co., Southbridge, Mass.
 Irvington Mfg Co., Irvington, N. J.
 Judson Cutlery Co., 41 Union Sq., New York
 Lamson & Goodnow Mfg Co., 36 Warren St., New York
 Landers, Frary & Clark, New Britain, Conn.
 Northampton Cutlery Co., Northampton, Mass.
 Ontario Knife Co., Franklinville, N. Y.
 Oshkosh Mfg Co., Oshkosh, Wis.
 Ridgely Trimmer Co., 153 Hudson St., New York
 Russell Cutlery Co., John, Turner Falls, Mass.
 Shapleigh Hardware Co., St. Louis, Mo.
 Topping Bros., 122 Chambers St., New York
 Washington Cutlery Co., Watertown, Wis.

KNIVES, Shear

Heppenstall Forge & Knife Co., Pittsburgh
 Simonds Mfg Co., Fitchburg, Mass.
 Tinker & Sons Co., F., 57th & Butler Sts., Pittsburgh
 Wapakoneta Machine Co., The, Wapakoneta, Ohio

L**LACING, Belt, Rawhide & Metallic**

Akron Belting Co., Akron, Ohio
 Bailey-Lebby Co., Charleston, S. C.
 Bay State Belting Co., 605 Atlantic Av., Boston
 Brawn Bros. Co., Providence, R. I.
 Coupe Co., Wm., So. Attleboro, Mass.
 Druid Oak Belting Co., 111 E. Lombard St., Baltimore
 Hudson Belting Co., 3 Eaton Pl., Worcester, Mass.
 Lawrence Belting Co., 111 Chambers St., New York
 Manufacturers' Belt Hook Co., 1315-21 W. Congress St., Chicago

Missouri Belting Co., 116 Nassau St., New York
 Palmer & Co., N., Bridgeport, Conn.
 Philadelphia Belting Co., 17 Battery Place, New York
 Richmond Leather Mfg Co., 2201 E. Carey St., Richmond, Va.

Simmons Manufacturing Co., Philadelphia

LACQUER (See Paint, Subhead)**LADDERS, Jacob**

American Chain Ladder Co. (Chain), G. C. T., New York
 Bottger Bros. & Co. (Rope), Marine Basin, Brooklyn
 Burrows, Inc., George R. (Rope), 2 South St., New York
 Shipbuilding Products Mfg Co. (Chain), 179 West St., New York

LADDERS, Ship

Irving Iron Works Co., Long Island City, New York
 Treadwell Engineering Co., Easton, Pa.
 Universal Safety Tread Co., 40 Court St., Boston

LADLES, Foundry (See Foundry Equipment)**LADLES, Plumbers', Double Lip
Single Lip**

Alexander & Cox Co., Ogden & Western Aves., Chicago
 Bernz, Otto, 27 Ashland St., Newark, N. J.
 Buffum Tool Co., Louisiana, Mo.
 Central Foundry Supply Co., Columbus, Ohio
 Clayton & Lambert Mfg Co., 1380 Beaubien St., Detroit, Mich.

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Eberhard Manufacturing Co., Tennyson & C. P. RR., Cleveland

Focht Sons, Geo., Hoboken, N. J.
 Harris & Co., Samuel, 114 W. Clinton St., Chicago
 Hill-Brunner Fdry & Sup Co., 2107 South St., Cincinnati
 Hollands Manufacturing Co., 348 E. 18th St., Erie, Pa.
 Kellogg Mackay Co., 419 W. 18th St., Chicago

Kemp Machinery Co., 223 N. Calvert St., Baltimore
 Lalance Grosjean Mfg Co., 299 Broadway, New York
 Lowentraut Mfg Co., P., 36 Brenner St., Newark, N. J.
 Mark Manufacturing Co., Evanston, Ill.

Osborne & Co., C. S., Harrison, N. J.
 Peck, Stow & Wilcox, 46 W. Broadway, New York
 Standard Plumb. Sup. Co., 159th St. & St. Ann's Av., New York

Standard Sanitary Mfg Co., Pittsburgh
 Strelinger & Co., Chas. A., 43-51 E. Larned St., Detroit, Mich.

Woodwards Manger Co., 1106 Spring Garden St., Philadelphia

LAMPS, Arc

Adams-Bagnall Electric Co., Cleveland
 General Electric Co., Schenectady, N. Y.; see pp. 36-41
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., East Pittsburgh

**LAMPS, Blue Printing (See Also Blue Printing Machine)
Mercury Vapor**

Cooper-Hewitt Electric Co., Hoboken, N. J.

LAMPS, Electric, Incandescent, Carbon, Filament

Electric Glass Co., Toledo, Ohio
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hall-Motors, C. O., 147 W. 35th St., New York

STERLING-COOPER CO., NEW YORK

Herzog Miniature Lamp Co., W. F., 51 Jackson Av., Brooklyn, N. Y.

Lynn Glass Mfg Co., Lynn, Mass.
No. American Lamp Co., St. Louis, Mo.

Re New Lamp Co., Malden, Mass.
Vosburgh Miniature Lamp Co., West Orange, N. J.
(See also *Lamps, Electric, Incandescent, Standard*)

LAMPS, Electric, Diving
Masthead, White
Signal, White

Arnessen Electric Co., 109 Broad St., New York
Beardslee Chandelier Mfg Co., Chicago
Blickman, S., 199 Lafayette St., New York
Findlay Mfg Co., Robt., 224 Fifth Av., New York
Hart, Raymond S., 510 Broome St., New York
Livingston & Co., Inc., J., 104 E. 41st St., New York
Lovell & Co., F. H., Arlington, N. J.
Manhattan Electric Supply Co., 17 Park Row, New York
Marine Electric Co., San Francisco
Porter Co., The, 241 Water St., New York
Solar Light Co., 69 Wooster St., New York
Towle Mfg Co., Newburyport, Mass.
Wheeler Reflector Co., Boston
Williamson & Co., R., 601 Wash St., Chicago

LAMPS, Electric, Incandescent, Miniature

Amer. Ever Ready Wks, of Nat'l Carbon Co., Long Island City, N. Y.
General Electric Co., Schenectady, N. Y., see pp. 36-41
McFadden & Co., H. G., 38 Warren St., New York
Miniature Incandes. Lamp Co., 95 8th Av., Newark, N. J.
Weehawken Tungsten Lamp Co., Weehawken, N. J.
(See also *Lamps, Standard*)

LAMPS, Electric, Incandescent, Standard

Alpha Laboratory, Inc., 128 Mott St., New York
Arnessen Electric Co., 109 Broad St., New York
Benjamin Electric Co., Chicago
Bryant Electric Co., Bridgeport, Conn.
Bunnell & Co., J. H., 32 Park Place, New York
Central Electric Co., Chicago
Chicago Miniature Lamp Co., Chicago
Edison Lamp Works of G. E., Harrison, N. J.
Electric Lamp Products Co., Jersey City, N. J.
Franklin Electric Mfg Co., Hartford, Conn.
Fullerton Electric, 15 W. 20th St., New York
Garton Co., The W. R., Chicago
General Electric Co., Schenectady, N. Y., see pp. 36-41
Herzog Elec. & Engrg. Co., 172 Steuart St., San Francisco
Hygrade Lamp Co., Salem, Mass.
Independent Lamp & Wire Co., Inc., Weehawken, N. J.
Killoch Co., David, 57 Murray St., New York
Latham & Co., E. B., 550 Pearl St., New York
Livingston & Co., Inc., J., 104 E. 41st St., New York
Manhattan Electric Supply Co., 17 Park Row, N. Y.
Nazel Electric Co., W. G., Toledo, Ohio
Philadelphia Electric Co., The, Philadelphia
Pittsburgh Electric & Mach Co., Pittsburgh
Royal Eastern Elec. Sup. Co., 114 W. 27th St., New York
Safety Electric Co., 537 Dearborn St., Chicago
Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43

Sibley-Pitman Electric Corp., 190 Sixth Av., New York
Solar Light Co., 69 Wooster St., New York
Stanley & Patterson, West & Hubert Sts., New York
Triumph Lamp Works, Union Hill, N. J.
Westinghouse Lamp Co., 165 Broadway, New York
Western Electric Co., 151 Fifth Av., New York
Wetmore-Savage Co., Boston

LAMPS, Electric, Incandescent, Tungsten Filament

Advance Lamp Works, Chicago
Bissell Co., The F., Toledo, Ohio
Domestic Tungsten Lamp Co., 418 10th St., W. New York, N. J.
General Electric Co., Schenectady, N. Y., see p. 36-41
Nitro-Tungsten Lamp Co., Providence, R. I.
(See also *Lamps, Standard*)

LAMPS, Electric, Portable

Arnessen Electric Co., 109 Broad St., New York
Beardslee Chandelier Mfg Co., Chicago

Bunnell & Co., J. H., 32 Park Place, New York
Central Electric Co., Chicago
Consolidated Electric Lamp Co., Danvers, Mass.
Crouse-Hinds Co., Syracuse, N. Y.
Crown Electric Mfg Co., St. Charles, Ill.
Faries Mfg Co., Decatur, Ill.
Fullerton Electric Co., 15 W. 20th St., New York
Kayline Co., The, Cleveland
Livingston & Co., Inc., J., 104 E. 41st St., New York
Lovell & Co., F. H., Arlington, N. J.
Manhattan Electrical Supply Co., 17 Park Row, New York
Marine Electric Co., San Francisco
Morreau Co., Cleveland
NePage-McKinney Co., Portland, Ore.
Nitrogen Electric Co., Newark, N. J.
Philadelphia Electric Co., 132 So 11th St., Philadelphia
Pittsburgh Electric & Mach. Co., Pittsburgh
Pittsburgh Lamp, Brass & Glass Co., Pittsburgh
St. Louis Brass Mfg Co., St. Louis, Mo.
Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43
Sibley-Pitman Electric Corp., 190 6th Av., New York
Solar Light Co., 69 Wooster St., New York
Western Electric Co., 151 Fifth Av., New York

LAMPS, Oil Burning, Safety

Adams & Westlake Co., Ontario & N. Franklin St., Chicago
American Safety Lamp & Mine Sup. Co., Scranton, Pa.
Biddle-Gauner Co., 3846 Lancaster Av., Philadelphia
Miller & Co., Edward, 68 Park Place., New York
National Marine Lamp Co., 254 Pearl St., New York
Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
Porter Co., The, 241 Water St., New York
Wakefield Brass Co., F. W., Vermillion, Ohio

LAMPS, Wax Burning, Bunker

Biddle-Gauner Co., 3846 Lancaster Av., Philadelphia
National Marine Lamp Co., 254 Pearl St., New York
Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
Porter Co., The, 241 Water St., New York
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
Wakefield Brass Co., F. W., Vermillion, Ohio

LANTERNS, Electric, Running Light, Green, Red & White

Arnessen Electric Co., 109 Broad St., New York
Blickman, S., 199 Lafayette St., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Findlay Mfg Co., Robt., 224 5th Av., New York
Hart, Raymond S., 510 Broome St., New York
Latham, E. B., 550 Pearl St., New York
Livingston & Co., Inc., J., 104 E. 41st St., New York
Lovell & Co., F. H., Arlington, N. J.
Marine Electric Co., San Francisco
NePage McKinney Co., Portland, Ore.
Porter Co., 241 Water St., New York
Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
Solar Light Co., 69 Wooster St., New York
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
Towle Mfg Co., Newburyport, Mass.
Wheeler Reflector Co., Boston, Mass.
White Mfg Co., J. H., 111 N. 3d St., Brooklyn, N. Y.
Williamson & Co., R., 601 Wash. St., Chicago

LANTERNS & LAMPS, Oil Burning, Anchor, White Masthead, White Running, Green, Red & White Standing, Bulkhead, etc.

(See also *Bails, Lantern*)

Adams & Westlake Co., Ontario & Franklin St., Chicago
Blickman, S., 199 Lafayette St., New York
Clinton Metal Lamp Co., 57 Chrystie St., New York
Corning Glass Works, 501 Fifth Av., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Findlay Manufacturing Co., R., 224 Fifth Av., New York
Gill Bros. Co., Steubenville, Ohio
Gleason-Tiebout Glass Co., 93 Commercial St., Brooklyn, N. Y.

STERLING-COOPER CO., NEW YORK

Lovell & Co., F. H., Arlington, N. J.
 National Marine Lamp Co., 254 Pearl St., New York
 National Metal Spin. & Stpg. Co., 176 Grand St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Brooklyn, N. Y.
 Pittsburgh Lamp, Brass & Glass Co., Pittsburgh
 Porter Co., The, 241 Water St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Wakefield Brass Co., F. W., Vermillion, Ohio
(Specify Brass, Clear, or Brass, Oxidized)

LANTERNS, Wax Burning, Steel, Tinned

Biddle-Gauner Co., 3846 Lancaster Av., Philadelphia
 Blickman, S., 199 Lafayette St., New York
 Clinton Metal Lamp Co., 57 Chrystie St., New York
 National Marine Lamp Co., 254 Pearl St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Brooklyn, N. Y.
 Porter Co., The, 241 Water St., New York
 Rochester Head Light Works, 27 N. Washington St.,
 Rochester, N. Y.
 Star Headlight Co., Rochester, N. Y.
 Tongue & Bros., R. E., Allegheny & Amber Aves., Philadelphia

LANYARDS, Hemp, Jibstay, etc.

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbian Cordage Co., Auburn, N. Y.
 Filter Co., Edwin H., Philadelphia
 Granger Co., Inc., Geo. B., 66 Broadway, New York
 Macwhyte Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle, Wash.
 Plymouth Cordage Co., No. Plymouth, Mass.
 Tubbs Cordage Co., San Francisco
 Upson Walton Co., Cleveland
 Wall Rope Works, 48 South St., New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

LANYARDS, ROWLOCK, etc. (See Codline)

(See also Ship Chandlers, Port Data Section)

LATCHES, Night, Bronze

Barrows Lock Co., Lockport, Ill.
 Broadway Hardware Co., Newport, R. I.
 Burglar Proof Lock & Hdw Corp, 155 Leonard St., New York
 Champion Hardware Co., Geneva, Ohio
 Channon Mfg Co., Jas. H., Chicago
 Climax Co., 275 Passaic St., Newark, N. J.
 Clinton Lock Co., Clinton, Iowa
 Conn. Hardware Mfg Co., Bridgeport, Conn.
 Eagle Lock Co., 105 Chambers St., New York
 Fraim Lock Co., E. T., Lancaster, Pa.
 Huber Mfg Co., 417 E. 93d St., New York
 Lockwood Mfg Co., So. Norwalk, Conn.
 Loeffelholz Co., 170 Clinton St., Milwaukee, Wis.
 Miller Co., J. Walter, Lancaster, Pa.
 Norwalk Lock Co., Norwalk, Conn.
 Reading Hardware Co., Reading, Pa.
 Sager Lock Co., No. Chicago, Ill.
 Sargent & Co., 94 Centre St., New York
 Simmons Hardware Co., St. Louis, Mo.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 Yale & Towne, Stamford, Conn.
 Winchester Brass & Copper Co., Winsted, Conn.

LATHE DOGS

Armstrong Bros. Tool Co., Chicago
 Billings & Spencer, Hartford, Conn.
 McCrosky Tool Co., Meadville, Pa.
 Ready Tool Co., Bridgeport, Conn.
 Union Tool Co., Orange, Mass.
 West Steel Casting Co., Cleveland
 Whitney & Barnes, Akron, Ohio
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

LATHES, Automatic

Cleveland Automatic Machine Co., Cleveland
 Jones & Lamson Machine Co., Springfield, Vt.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Potter & Johnston Machine Co., Pawtucket, R. I.

LATHES, Bench

Dalton Mfg Corp, 1915 Park Av., New York
 Foster Machine Co., Elkhart, Ind.
 Greenfield Tap & Die Corp, Greenfield
 Hamilton Machine Tool Co., The, Hamilton, Ohio
 Lynd-Farquhar Co., Boston
 Potter Tool & Mach Wks, S. A., 79 E. 130th St., New York
 Rahn-Larmon Co., Cincinnati
 Rivett, Lathe & Grinder Co., Hartford, Conn.
 Rockford Lathe & Drill Co., Rockford, Ill.
 Russell, Holbrook & Henderson, 30 Church St., New York
 Seneca Falls Manufacturing Co., The, Seneca Falls, N. Y.
 Skinner Chuck Co., The, New Britain, Conn.
 South Bend Lathe Works, South Bend, Ind.
 Stark Tool Co., Waltham, Mass.
 Wade-American Tool Co., Boston
 Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass.

LATHES, Boring

Gisholt Machine Co., Madison, Wis.
 Henes, Louis G., San Francisco
 Niles-Bement-Pond Co., 111 Broadway, New York

LATHES, Engine

American Tool Works Co., Cincinnati
 Axelson Machine Co., Los Angeles
 Blount Co., Everett, Mass.
 Bridgeford Mach. Tool Wks, Brighton P. O., Rochester, N. Y.
 Bullard Machine Tool Co., Bridgeport, Conn.
 Cincinnati Lathe & Tool Co., 3207 North St., Oakley, Cincinnati
 Cleveland Milling Machine Co., Cleveland
 Dalton Mfg Corp, 1915 Park Av., New York
 Foster Machine Co., Elkhart, Ind.
 Hamilton Machine Tool Co., The, Hamilton, Ohio
 Hendey Machine Co., Torrington, Conn.
 Hill Clarke & Co., Boston
 Houston, Stanwood & Gamble Co., The, Cincinnati
 Kemp Machine Co., 223 N. Calvert St., Baltimore
 LeBlond Machine Tool Co., The R. K., Cincinnati
 Lynd-Farquhar Co., Boston
 Mershon & Co., Wm. B., Saginaw, Mich.
 Monarch Machine Tool Co., Sidney, Ohio
 Mueller Machine Tool Co., Cincinnati
 National Lathe Co., The, 11-15 W. Second St., Cincinnati
 New Haven Manufacturing Co., New Haven, Conn.
 Pittsburgh Machine Tool Co., Braddock, Pa.
 Reed-Prentice Co., Worcester, Mass.
 Russell, Holbrook & Henderson, 30 Church St., New York
 Sebastian Lathe Co., Box 729, Cincinnati
 Seneca Falls Manufacturing Co., The, Seneca Falls, N. Y.
 South Bend Lathe Works, South Bend, Ind.
 Steidle Turret Machine Co., Madison, Wis.
 Sterling Machine Tool Co., Cincinnati
 Strong, Carlisle & Hammond Co., Cleveland
 Ward & Son, Fred, San Francisco
 Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass.
 Worcester Lathe Co., Worcester, Mass.

LATHES, Extension Gap

American Tool Works Co., Cincinnati
 Harrington Son & Co., Inc., E. Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Rahn-Larmon Co., Cincinnati
 Ryerson, Jos. T., Chicago
 Warner Drill Co., Inc., Rockford, Ill.

LATHES, Precision

Ames Co., B. C., Waltham, Mass.
 Elgin Tool Works, Elgin, Ill.
 Hardinge Bros., Inc., 1770 Berteau Av., Chicago
 Hjorth Lathe & Tool Works, 27 School St., Boston
 Luster Machy Co., Widener Bldg., Philadelphia
 Pratt & Whitney Co., Hartford, Conn.
 Sloan & Chase Mfg Co., Newark, N. J.
 Stack Tool Co., Waltham, Mass.
 Waltham Machine Works, Waltham, Mass.

LATHES, Tool Room

Bridgeford Machine Tool Works, Rochester, N. Y.
 Foster Machine Co., Elkhart, Ind.
 Hamilton Machine Tool Co., The, Hamilton, Ohio

STERLING-COOPER CO., NEW YORK

Hendey Machine Co., Torrington, Conn.
 Kemp Machine Co., 405 E. Oliver St., Baltimore
 Lovejoy Tool Co., Springfield, Vt.
 Monarch Machinery Co., 300 N. 3d St., Philadelphia
 Ready Tool Co., Bridgeport, Conn.
 Whitcomb Blaisdell Machine Tool Co., Worcester, Mass.

LATHES, Turret

Acme Machine Tool Co., 2235 Buck St., Cincinnati
 American Tool Works, 6th & Eggleston Av., Cincinnati
 Bullard Machine Tool Co., Bridgeport, Conn.
 Dale Brewster Machine Co., 30 Church St., New York
 Detrick & Harvey Mach. Co., 508 E. Preston St., Baltimore
 Fay & Scott, Dexter, Me.
 Foster Machine Co., Elkhart, Ind.
 Gishalt Machine Co., Madison, Wis.
 Greenlee Bros. Co., Rockford, Ill.
 Henes, Louis G., San Francisco
 International Mach. Tool Co., 406 Broome St., New York
 Jones & Lamson Machine Co., Springfield, Vt.
 Lovejoy Tool Co., Springfield, Vt.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Prentiss & Co., Henry, 149 Broadway, New York
 Reed-Prentice Machine Co., 122 Gold St., Worcester, Mass.
 Steinle Turret Machine Co., Madison, Wis.
 Vandyck-Churchill Co., 91 Liberty St., New York
 Ward & Son, Fred, San Francisco
 Warner & Swasey Co., 5701 Carnegie Av., S. E., Cleveland
 Whitcomb Blaisdell Machine Tool Co., Worcester, Mass.
 Wood Turret Machine Co., Brazil, Ind.

LATHES, Wood Working

Barnes Co., W. F. & John, Rockford, Ill.
 Blount Co., J. B., Everett, Mass.
 Foster Machine Co., Elkhart, Ind.
 Fox Machine Co., Grand Rapids, Mich.
 Seneca Falls Mfg Co., The, Seneca Falls, N. Y.
 Whitcomb Blaisdell Machine Tool Co., Worcester, Mass.

LAUNCHING GREASE (See Grease, Launching)**LAUNDRY MACHINES**

Adams Laundry Machine Co., Troy, N. Y.
 American Laundry Co., 134 W. 37th St., New York
 Empire Laundry Machinery Co., Boston
 Henrici Laundry Machy Co., 46 Dey St., New York
 Poland Laundry Machinery Co., Boston
 Troy Laundry Machinery Co., Troy, N. Y.

LAVA BUSHINGS (See Bushings, Lava)**LAVATORIES**

Clow & Sons, Jas. B., Chicago
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Douglass Co., John, Cincinnati
 Federal Huber Co., Chicago
 Haines, Jones & Cadbury, 1136 Ridge Av., Philadelphia
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Keating & Co., E. F., 446 Water St., New York
 Kokomo Sanitary Mfg Co., Kokomo, Ind.
 McCambridge Co., 315 N. 20th St., Philadelphia
 Messer Co., William, 27 Suffolk St., New York
 Mott Iron Works, J. L., Trenton, N. J.
 Sands & Son, A. B., 20 Vesey St., New York
 Sanitas Mfg Co., 48 Union St., Boston
 Standard Sanitary Mfg Co., Pittsburgh
 Walker Mfg & Supply Co., Detroit, Mich.

LEAD, Pig

American Lead Co., 52 Vanderbilt Av., New York
 American Smelting & Ref. Co., 120 Broadway, New York
 American Zinc & Lead Co., 120 Broadway, New York
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Central Smelting & Refining Co., 220 Rider Av., New York
 Chadwick Boston Lead Co., 162 Congress St., Boston
 Chicago Solder Co., 218 No. Union Av., Chicago
 Cuyler & Mohler, 611 William St., Baltimore
 Eagle-Picher Lead Co., Cincinnati
 Eagle Smelting & Refin. Wks, 233 Broadway, New York
 Great Western Smelt. & Refin. Co., 41st & Wallace Sts., Chicago
 Michigan Smelt. & Refin. Co., 30 Church St., New York
 Nassau Smelt. & Refin. Co., 603 W. 29th St., New York
 No. Atlantic Metal Corp, 29 Broadway, New York

Pittsburgh White Metal Co., 3116 Penn Av., Pittsburgh
 Robertson Lead Co., James, 827 Howard St., Baltimore
 St. Joseph Lead Co., 61 Broadway, New York
 Sales & Co., Murray W., 74 Jefferson Av., Detroit, Mich.
 Sandoval Zinc Co., Chicago
 Selby Smelting & Lead Co., San Francisco
 Union Smelting & Refining Co., World Bldg., Park Row, New York
 U. S. Smelting Wks, 1615 Spring Garden St., Philadelphia
 White Bros., Inc., North American Bldg., Philadelphia

LEAD, Sheet

American Lead Co., 52 Vanderbilt Av., New York
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Case & Son, W. A., Gravesend Av., Brooklyn, N. Y.
 Chadwick Boston Lead Co., 162 Congress St., Boston
 Columbia Smelt & Refin Wks, 365 West St., New York
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crown Metal Co., Milwaukee, Wis.
 Cuyler & Mohler, 611 William St., Baltimore
 Eagle-Picher Lead Co., Cincinnati
 Eastern Zinc Refin. Co., Inc., 255 Russell St., Bklyn., N. Y.
 Fidelity Metal Co., 196 Diamond St., Brooklyn, N. Y.
 Gummey, MacFarland & Co., Philadelphia
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70

National Lead Co., 111 Broadway, New York
 North Atlantic Metal Corp, 29 Broadway, New York
 Northwest Lead Co., Seattle, Wash.
 Phillips-Ezra & Sons., So. Hanover, Mass.
 Richards & Co., Inc., 200 Causeway St., Boston
 Robertson Lead Works, 827 So. Howard St., Baltimore
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Selby Smelting & Lead Co., San Francisco
 Standard Rolling Mills, 363 Hudson Av., Brooklyn, N. Y.
 Union Smelting & Refining Co., Inc., Newark, N. J.
 United American Metals Corp, 50 E. 42d St., New York
 United Amer. Smelt. Corp, 196 Diamond St., Bklyn., N. Y.
 United Lead Co., 111 Broadway, New York
 United Smelting & Aluminum Co., New Haven, Conn.
 Western Metal Supply Co., San Diego, Cal.
 White & Bros., Inc., North American Bldg., Philadelphia

LEADBURNING OUTFITS, Electric

Arnessen Electric Co., 109 Broad St., New York
 Thompson, W. L., 1789 Broadway, New York
 Wetmore-Savage Co., Boston

LEAD LINES, Hand (See Lines, Lead)**LEAD PIPE (See Pipe, Lead)****LEADS, Sounding**

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 (See also *Ship Chandlers, Port Data Section*)

LEADS, Sounding Machine, Iron Handled

Alford Manufacturing Co., Chelsea, Mass.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Graff, Washbourne & Dunn, 142 W. 14th St., New York
 Jackson Co., Wm. H., 335 Carroll St., Bklyn., N. Y.
 Kelvin & Wilfrid O. White, 112 State St., Boston
 Moeller, A. E., 263 Sumpter St., Brooklyn, N. Y.
 Morrison Co., Angus, 183 High St., Boston
 Nautical Instrument Mfg Co., 47 West St., New York
 Stoelting Co., C. H., 3087 Carroll Av., Chicago
 Weulz Co., Louis, 6 California St., San Francisco

LEATHER, Artificial

Athol Manufacturing Co., Athol, Mass.
 Boston Woven Hose & Rubber Co., Cambridge, Mass.
 Chase & Co., L. C., Boston
 DuPont Fabricoid Co., 21 E. 40th St., New York
 Endura Manufacturing Co., Philadelphia
 Fibro Manufacturing Co., Beverly, N. J.
 Garnar & Co., Inc., Thos., 181 William St., New York
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee, Wis.
 Pantasote Co., The, 11 Broadway, New York
 Zapon Leather Cloth Co., 200 Fifth Av., New York

LEATHER, Rawhide, Hard

Coet Bros., 204 George St., New Haven, Conn.
 Fleming & Sons, D. B., 10 Jacob St., New York
 New York Leather Belting Co., 428 Broadway, New York
 Missouri Belting Co., 115 Nassau St., New York
 Palmer & Co., N., Bridgeport, Conn.
 Richmond Leather Mfg Co., 2201 E. Cary St., Richmond, Va.
 Western Rawhide & Belting Co., Milwaukee, Wis.

LEATHER, Rawhide Hides

Akron Belting Co., Akron, Ohio
 Alexander Bros., 100 Lafayette St., New York
 Bailey-Lebby Co., Charleston, S. C.
 Braun Bros. Co., Providence, R. I.
 Central Belting Co., 151 Lafayette St., New York
 Chicago Rawhide Mfg Co., 1301 Elston Av., Chicago
 Couse & Bolton, 44 Lafayette St., Newark, N. J.
 Cross Bros. & Co., 114 Mill St., Rochester, N. Y.
 Druid Oak Belting Co., 111 E. Lombard St., Baltimore
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee, Wis.
 Graton & Knight, Worcester, Mass.
 Holyoke Belting Co., Holyoke, Mass.
 Houghton & Co., E. F., 432 Canal St., New York
 Hudson Belting Co., 3 Eaton Pl., Worcester, Mass.
 Jewel Belting Co., Hartford, Conn.
 Lawrence Belting Co., 111 Chambers St., New York
 National Leather Belting Co., 342 E. 38th St., New York
 Norwich Belt Manufacturing Co., Norwich, Conn.
 Palmer & Co., N., Bridgeport, Conn.
 Richmond Leather Mfg Co., Richmond, Va.
 Schieren & Co., Chas. A., 30 Ferry St., New York
 Union Belt Co., Fall River, Mass.
 Western Rawhide & Belting Co., Milwaukee, Wis.
 Williams & Sons, J. B., Dover, N. H.

LEATHER, Rigging, Oak Tanned

American Oak Leather Co., Cincinnati
 Braun Bros. Co., Providence, R. I.
 Fleming & Son, D. B., 10 Jacob St., New York
 Frank & Sons, B., 40 Spruce St., New York
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee, Wis.
 Graton & Knight, Worcester, Mass.
 Harrison Co., Benjamin V., 42 Spruce St., New York
 Houghton & Co., E. F., 240 W. Somerset St., Philadelphia
 Ladew, Edward R., Inc., 428 Broadway, New York
 Rees' Sons, Hans, 39 Frankfort St., New York

LEATHER, Upholstery

American Oak Leather Co., Cincinnati
 Blanchard Bros. & Lane, Newark, N. J.
 Federal Leather Prod. Co., 103 Park Av., New York
 Fleming & Son, D. B., 10 Jacob St., New York
 Garnar & Co., Inc., Thos., 181 William St., New York
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee, Wis.
 Karpen & Bros. S., 111 W. 37th St., New York
 Lackawanna Leather Co., Hackettstown, N. J.
 Radel Leather Mfg Co., Wilson Av., Newark, N. J.
 Zapon Leather Cloth Co., 200 Fifth Av., New York

LEATHERS, Hydraulic (See Packing, Hydraulic)**LENSES, Airport, etc. (See Also Glasses, Airport)**

Abraham, Harry, 134 Mott St., New York
 Corning Glass Works, 501 Fifth Av., New York
 Jones Decorative Glass Co., 231 Hudson Av., Bklyn., N. Y.
 Donnelly Co., J. R., 54 Classon Av., Brooklyn, N. Y.
 Gallagher, P. J., 24 N. Chambers St., New York
 Keppler Glass Constructs, 1799 First Av., New York
 Kimble Glass Co., 241 W. 37th St., New York
 Macbeth-Evans Glass Co., 19 W. 44th St., New York
 National Marine Lamp Co., 254 Pearl St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
 Pittsburgh Lamp, Brass & Glass Co., Pittsburgh
 Pittsburgh Plate Glass Co., 3d Av. & Dean St., Bklyn., N. Y.

Porter Co., The, 241 Water St., New York
 Sneath Glass Co., Hartford City, Ind.
 Triplex Safety Glass Co., 501 Fifth Av., New York

LENSES, Lamp & Lantern

Adams & Westlake Co., Ontario & N. Franklin St., Chicago
 Corning Glass Works, Corning, N. Y.

Gill Bros. Co., Steubertville, Ohio
 Gillinders & Sons, Inc., Tacony, Philadelphia
 Hardy & Co., F. A., 15 W. 36th St., New York
 Keppler Glass Construct., Inc., 1799 First Av., New York
 Macbeth-Evans Glass Co., 19 W. 44th St., New York
 National Marine Lamp Co., 254 Pearl St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
 Pittsburgh Lamp, Brass & Glass Co., Pittsburgh
 Rochester Head Light Works, 27 N. Washington St., Rochester, N. Y.
 Sneath Glass Co., Hartford City, Ind.
 Star Headlight Co., Rochester, N. Y.

LEVELS, Machinists

Athol Machine Co., Athol, Mass.
 Brambacher & Co., A. F., 31 Fulton St., New York
 Chandler & Farquhar Co., 32 Federal St., Boston
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Dale Brewster Machy Co., 54 Lafayette St., New York
 Davis-Hunt Colester Hardware Co., 2062 Ontario St., Cleveland
 Disston & Sons, Henry, Tacony, Philadelphia
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, Inc., 2 South St., New York
 French & Co., Inc., H. P., 320 Broadway, New York
 Goodell-Pratt Co., Greenfield, Mass.
 Hammacher, Schlemmer & Co., 133 Fourth, Av., New York
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Kurzon, Chas., 159 E. Houston St., New York
 Machinists' Supply Co., Pittsburgh
 Millers Falls Co., Millers Falls, Mass.
 Modern Tool & Machine Works, Inc., 350 Mulberry St., Newark, N. J.
 Pruden Hardware Co., W. E., 258 West 52d St.
 Queen-Gray Co., Inc., 618 Chestnut St., Philadelphia
 Ruehle & Co., E. G., 180 Fulton St., New York
 Sand & Sons, J., 1023 Reward St., Detroit, Mich.
 Shapleigh Hardware Co., St. Louis, Mo.
 Stanley Rule & Level Co., The, New Britain, Conn.
 Starrett Co., The L. S., Athol, Mass.
 Strelinger & Co., Chas. A., 43-51 Larned St., Detroit, Mich.
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York
 Warren Knight Co., 136 N. 12th St., Philadelphia

LEVELS & PLUMBS, Carpenters (See Levels, Machinist)**LIFE BELTS & JACKETS, Cork**

American Balsa Co., 50 E. 42d St., New York
 American Life Saving Garment Co., 463 Commercial St., Boston
 Armstrong Cork Co., Pittsburgh, Pa.
 Atlantic-Pacific Mfg Co., 124 Atlantic Av., Brooklyn, N. Y.
 Brauer & Son, Inc., Justus, Philadelphia
 Carpenter & Co., Geo. B., Chicago
 Coston Supply Co., 57 Front St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Ferdinand & Co., L. W., Boston
 Galbraith & Son, C. C., 90 West St., New York
 Kahnweiler's Sons, David, 260 Front St., New York
 Lane Life Boat Co., C. M., Brooklyn, N. Y.
 Marine Mfg & Supply Co., 158 South St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57
 Williams, W. E., 62 Front St., New York

LIFE BUOYS, Cork Ring

American Balsa Co., 50 E. 42d St., New York
 Armstrong Cork Co., Pittsburgh
 Atlantic-Pacific Mfg Co., 124 Atlantic Av., Brooklyn, N. Y.
 Carpenter & Co., Geo. B., 440 Hills St., Chicago
 Coston Supply Co., 57 Front St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Ferdinand & Co., L. W., Boston
 Ford & Geirrine, San Francisco
 Galbraith & Son, C. C., 117 West St., New York
 Marine Mfg & Supply Co., 158 South St., New York
 Masten Co., Inc., G. H., 222 E. 46th St., New York

LIFE BUOYS, Metal Ring

American Balsa Co., 50 E. 42d St., New York
 Carpenter & Co., Geo. B., 440 Hills St., Chicago
 Franklin Machine & Steam Boiler Wks, Brooklyn, N. Y.

STERLING-COOPER CO., NEW YORK

Galbraith & Son, C. C., 117 West St., New York
 Marine Mfg & Supply Co., 158 South St., New York
 Masten Co., Inc., G. H., 222 E. 46th St., New York

LIFE RAFTS, Metallic

Drien & Son, Thomas, Wilmington, Del.
 Galbraith & Son, C. C., 90 West St., New York
 Lane Lifeboat Co., C. M., Brooklyn, N. Y.
 Pacific Boat Co., Oakland, Cal.
 Kahnweilers Sons, David, 260 Front St., New York
 Schmitt Metal Products Co., Geo., Oakland, Cal.
 (See also *Boats, Metallic, Life*)

LIFTING MAGNETS

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

Electric-Controller & Mfg Co., Cleveland
 Industrial Works, Bay City, Mich.
 Ohio Electric Controller & Mfg Co., Cleveland

LIGHTING FIXTURES, Electric, Anchor Bulkhead Ceiling Deck

Beardslee Chandelier Mfg Co., 216 S. Jefferson St., Chicago
 Benjamin Electric Co., Chicago
 Crouse-Hinds Co., Syracuse, N. Y.
 Crown Electrical Mfg Co., St. Charles, Ill.
 Drew Electric & Mfg Co., Indianapolis, Ind.
 Fullerton Electric Co., 15 W. 20th St., New York
 Livingston & Co., J., 70 E. 45th St., New York
 Lovell & Co., F. H., Arlington, N. J.
 Manhattan Electric Supply Co., 17 Park Pl., New York
 Rattan Manufacturing Co., Keene, N. H.
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43
 Union Electric Co., Trenton, N. J.
 Western Electric Co., 151 Fifth Av., New York
 White Mfg Co., J. H., 111 N. 3d St., Brooklyn, N. Y.

LIGHTING SETS, Ship, Electric (See Also Generating Sets)

General Electric Co., Schenectady, N. Y., see pp. 36-41

LIGHTS (See Lamps, Also Lanterns)

LIGHTS, Life Buoy, Tin

Adams & Westlake Co., The, Ontario & N. Franklin St., Chicago

Clinton Metal Lamp Co., 57 Chrystie St., New York
 Corning Glass Works, 18 E. 41st St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

National Marine Lamp Co., 254 Pearl St., New York
 Perkins Marine Lamp Co., 1943 Pitkin Av., Bklyn., N. Y.
 Res-Q-Lite Co., The, 7th & Gaugh St., Baltimore

LIGHTS, Signal (See Blinkers)

LIGNUM VITAE

Dieckmann, Jr., J. R., San Francisco
 Douglas, Geo., 317-21 West St., New York
 Elias & Bro., G., 965 Elk St., Buffalo
 Hawes & Co., Willard, 7th St. & East River, New York
 Jeffris Lumber Co., D. K., Lumber Exch. Bldg., Chicago
 Kalt Lumber Co., 320 E. 64th St., New York
 McMillans Sons, W. H., 153 South St., New York
 Monteath Co., J. H., 202 Lewis St., New York
 National Timber Co., Mobile, Ala.
 Wyatt-Prock Lumber Co., Widener Bldg., Philadelphia

LINE THROWING GUNS

Coston Supply Co., 57 Front St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Galbraith & Son, C. C., 90 West St., New York
 General Ordnance Co., 2 W. 43d St., New York
 Kahnweiler's Sons, David, 260 Front St., New York
 Naval Company, 7420 Boyer St., Mt. Airy, Pa.
 Steward Davit & Equip Corp., 17 Battery Pl., New York

LINEN & TOWELLING SUPPLIES

Baker Linen Co., H. W., 41 Worth St., New York
 Empire Waste Co., 49 Front St., New York
 Scharf Supply Co., 101 Water St., New York
 Steamship Outfitting Co., 29 South St., New York

Superior Linen Co., 149 W. 36th St., New York
 Wanamaker, John, Philadelphia

LINERS, Steel Plate

Schmidt Bros., Lancaster, Pa.
 Solar Metal Products Co., Inc., Columbus, Ohio
 Wilson Co., Andrew, Lawrence, Mass.
 Worcester Pressed Steel Co., Worcester, Mass.

LINES, Hemp, Anchor

Log, Ship

Trailing, etc.

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 American Mills Co., 39 W. 19th St., New York
 Chelsea Fibre Mills, 212 Fifth Av., New York
 Columbian Rope Co., Auburn, N. Y.
 Granger Co., Inc., George B., 66 Broadway, New York
 Hoffman-Corr Mfg Co., 318 Lafayette St., New York
 Kelly Co., Henry C., 35 Worth St., New York
 Macwhyte Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Plymouth Cordage Co., No. Plymouth, Mass.
 Upson Walton Co., Cleveland
 Wall Rope Manufacturing Co., Beverly, N. J.
 Waterbury Co., 63 Park Row, New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

LINES, Lead, Twine

Log, Taffrail, Twine

Trailing, Cotton, etc.

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Ashaway Line & Twine Mfg Co., Ashaway, R. I.
 Kelly Co., Henry C., 35 Worth St., New York
 Hoffman-Corr Mfg Co., 318 Lafayette St., New York
 Linen Thread Co., 96 Franklin St., New York
 Macwhyte Co., Kenosha, Wis.
 Samson Cordage Works, 88 Broad St., Boston
 Silverlake Co., Newtonville, Mass.
 Turner & Stanton Co., Norwich, Conn.
 Upson Walton Co., Cleveland
 Whitlock Cordage Co., 46 South St., New York, see p. 27
 Winne Co., D. P., 105 Worth St., New York
 (See also *Ship Chandlers, Port Data Section*)

LININGS, Furnace (See Bricks, Fire; Also Cement, Refractory)

LINOLEUM

Armstrong Cork Co., Pittsburgh
 Cook's Linoleum Co., Trenton, N. J.
 Farr & Bailey Mfg Co., Camden, N. J.
 Finck Co., Inc., The S., 173 Broadway, New York
 Frederick & Nelson, Seattle, Wash.
 Manges & Son, Simon, 81 Avenue A, New York
 Nairn Linoleum Co., Kearny, N. J.
 Sloane, W. & J., 47th St. & Fifth Av., New York
 Walter & Co., D. N. & E., San Francisco
 Wild & Co., Jos., 230 Fifth Av., New York

LINOLEUM CEMENT (See Cement, Linoleum)

LOCK NUTS (See Nuts)

LOCKERS, Clothing, Metal

Child, Stanton M., 100 Worth St., New York
 Darby & Sons Co., Edward, 239 Arch St., Philadelphia
 Dexter Metal Mfg Co., 480 Lexington Av., New York
 Durand Steel Locker Co., 15 Park Row, New York
 Hauserman Co., F. E., The, Cleveland
 Jeffries Co., Richard W., Camden, N. J.
 Kleigbly Metal Ceiling & Mfg Co., S., Pittsburgh
 Medart Manufacturing Co., Fred, St. Louis, Mo.
 Penn Metal Co., 94 First St., Jersey City, N. J.
 Shults Co., Inc., H. H., Gowanda, N. Y.
 Van Dorn Iron Works, 318 Broadway, New York
 Water Ryan Safe Co., 627 Chestnut St., Philadelphia
 Weiss & Co., M., Irvington, N. J.
 Wilson Co., Andrew, Lawrence, Mass.

LOCKERS, Metal (See Furniture, Metal, Lockers & Cabinets; Also See Lockers, Clothing)

LOCKS, Pad, etc. (See Latches, Night)

STERLING-COOPER CO., NEW YORK

LOGS, Chip

Bliss & Co., John, 128 Front St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Hand & Son, John E., 224 Walnut St., Philadelphia
 Merrill Sons, R., 66 South St., New York
 Moeller, A. E., 265 Sumpter St., Brooklyn, N. Y.
 Negus, T. S. & J. D., 140 Water St., New York
 Nicholson Ship Log & Realty Co., 409 Superior, N. W.,
 Cleveland
 Riggs & Bro., 310 A. St., Philadelphia

LOGS, Taffrail

Bliss & Co., John, 128 Front St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Hamilton & Hansell, Inc., 13 Park Row, New York
 Hand & Son, John E., 224 Walnut St., Philadelphia
 McNab Co., The, 31 P. O. Arcade, Bridgeport, Conn.
 Merrill Sons, R., 66 South St., New York
 Moeller, A. E., 265 Sumpter St., Brooklyn, N. Y.
 Negus, T. S. & J. D., 140 Waters St., New York
 Riggs & Bros., 310 A. St., Philadelphia
LUBRICANTS (See Also Oils, Greases, etc.)
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

LUBRICATING APPLIANCES (See Also Cups, Oil

Lubricators
 Oil Filters
 Oil Pumps
 Oil Purifiers
 Oilers
 Strainers, Oil)

De Laval Separator Co., The, 165 Broadway, New York,
 see p. 68
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp.
 66 & 67

LUBRICATORS, Force Feed (See Also Oilers, Wick Feed)

Detroit Lubricator Co., Detroit, Mich.
 Greene Tweed & Co., Cincinnati
 Hills-McCanna Co., Chicago
 Lunkenheimer Co., Cincinnati
 McCard Mfg Co., Detroit, Mich.
 Madison-Kipp Corp, Madison, Wis.
 Powell Co., The Wm., Cincinnati
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp.
 66 & 67

LUMBER, Hardwood & Oak (See Also Specific Headings)

Adsit-Ward Lumber Co., Jersey City, N. J.
 American Lbr. & Mfg Co., Pittsburgh
 Azalea Woodworking Co., Azalea, N. C.
 Bay Creek Lbr. Co. (Struct. Tbrs.), Purvis, Miss.
 Bayles Lbr. Co., John, Pennsboro, W. Va.
 Britton Lbr. Co., The, Lakewood, Fla.
 Brookhaven Lbr. Co., Hattiesburg, Miss.
 Buffalo Hardwood Lbr. Co., Buffalo, N. Y.
 Carolina Land & Timber Co., Columbia, S. C.
 Carvin, E. T., 17 Battery Place, New York
 Chiska Lumber Co., Memphis, Tenn.
 Colfax Hardwood Lbr. Co., Colfax, La.
 Cross Bros. Lbr. Co., Philadelphia
 Davis Hardwood Co., San Francisco
 Dixon & Co., Jas. M., Savannah, Ga.
 Doran & Magee (Flooring Timbers), Ora, Miss.
 Emerson Hardwood Co., Portland, Ore.
 Enoch Bros. (Long Timbers), Fernwood, Miss.
 Fuller Dodge Lbr. Co., The, Ashtabula, Ohio
 Georgia-Carolina Lbr. Co., Savannah, Ga.
 Hall Bros. Cedar Co., Jacksonville, Tex.
 Holly Ridge Lbr. Co., Louisville, Ky.
 Hoskins Lbr. Co., J. S., Baltimore
 Kentucky Lbr. Co., Lexington, Ky.
 Massie & Felton Lbr. Co., Macon, Ga.
 Metropolitan Lbr. Co., 207 Market St., Newark, N. J.
 Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14
 Nichols & Cox Lbr. Co., Grand Rapids, Mich.
 Patterson & Edey Lbr. Co., Mobile, Ala.
 Penn Lumber Co., Greensboro, N. C.

Roper Lbr. Co., John L., Norfolk, Va.
 Sabine River Lbr. Co., Oakdale, La.
 Sevilla Lbr. Co., Inc., Poughkeepsie, N. Y.
 Southern Lbr. Co. (Long Timbers), Hillsdale, Miss.
 Turnbull Lbr. Co., J. W., Philadelphia
 Vaughn, Wm. J., 2 Stone St., New York
 Vinson Lbr. Co., Umpqua, Ore.
 White Bros., 5th & Brennan St., San Francisco
 White Lumber Co. (Large Timbers), Columbia, Miss.
 Winde, Henry, 102 Beverly St., Boston
 Wood Lbr. Co., R. E., Baltimore
 Woodstock Lbr. Co., 131 State St., Boston
 Yellow Poplar Lbr. Co., Coal Grove, Ohio

LUMBER, Yellow Pine

Adsit-Ward Lbr. Co., Jersey City, N. J.
 Bacon, Hal, Savannah, Ga.
 Brook-Scanlon Co., Kentwood, La.
 Coastwise Lbr. & Supply Co., New York
 Dieckmann, Jr., San Francisco
 Doran & Co., E. J., Hattiesburg, Miss.
 Enterprise Lumber Co., Goldsboro, N. C.
 Houston Lumber Co., Thomasville, Ga.
 Howard & Co., E. A., San Francisco
 Long-Bell Lumber Co., The, Kansas City, Mo.
 Mobile & Gulfport Lumber Co., Mobile, Ala.
 Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14
 Piedmont Lumber Co., Lynchburg, Va.
 Riggs-Terrell Lumber Co., New Orleans, La.
 Roper Lumber Co., John L., Norfolk, Va.
 Rowland Lumber Co., Norfolk, Va.
 Turnbull Lumber Co., J. W., Philadelphia

M**MACHINES (See Specific Headings)****MACHINISTS' TOOLS, Hand (See Also Specific Headings)**

Armstrong Bros. Tool Co., Chicago
 Athol Machine Co., Athol, Mass.
 Browne & Sharpe, Providence, R. I.
 Goodell-Pratt Co., Greenfield, Mass.
 Henes, Louis G., San Francisco
 Niles-Bement-Pond Co., 111 Broadway, New York
 Pratt & Whitney, Hartford, Conn.
 Slocomb Co., J. T., Providence, R. I.
 Starrett Co., L. S., Athol, Mass.

MAGNESIA, Block (See Also Asbestos Coverings)

American Refractories Co., 120 Broadway, New York
 Armstrong Cork & Insulation Co., Pittsburgh
 Bridgewater Chemical Co., Upland, Pa.
 Carey Co., The Philip, Cincinnati
 Douglas & Co., Daniel R., 75 West St., New York
 Ehret Magnesia Mfg Co., Valley Forge, Pa.
 Franklin Mfg Co., Franklin, Pa.
 Keasbey & Mattison Co., Ambler, Pa.
 Magnesia Ass'n of America, Bulletin Bldg., Philadelphia
 Williams Mfg Co., B. L., 118 S. 6th St., Philadelphia

MAGNETIC SETS, Compass Outfit

Alford Mfg Co., Chelsea, Mass.
 Chadburn Ship Telegraph Co., Troy, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Kelvin & Wilfrid O. White, 112 State St., Boston
 Keuffel & Esser, Hoboken, N. J.
 Lietz Co., A., 61 Post St., San Francisco
 Mayer & Bros., Jos., Seattle, Wash.
 Morrison & Sons, Frank, Cleveland
 Nautical Instrument Mfg Co., 47 West St., New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Standard Scientific Co., 147 Waverly Pl., New York

STERLING-COOPER CO., NEW YORK

MAGNETS, Heeling, Chain

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Keuffel & Esser, Hoboken, N. J.
Morrison & Sons, Frank, 1330 W. 11th St., Cleveland
Nautical Instrument Mfg Co., 47 West St., New York
Ritchie & Sons, E. S., Brookline, Mass., see p. 22
Weule Co., Louis, 6 Calif. St., San Francisco

MAGNETS, Lifting (See Also Lifting Magnets)

Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

MAGNOLIA (Wood)

Douglass, George, 317 West St., New York
Riggs-Terrell Lumber Co., New Orleans, La.

MAHOGANY

Black & Yates, Inc., 341 Fifth Av., New York
Burns & Co., John (Import only), 50 Broad St., New York
Central Timber Export Co., 115 Broadway, New York
Cross Bros. Lumber Co., 1420 Chestnut St., Philadelphia
Dieckmann, Jr., J. H., San Francisco
Douglass, Geo., 317 West St., New York
Elias & Bro., G., 965 Elk St., Buffalo
Frieberg Lumber Co., The Union Trust Bldg., Cincinnati
Hofferberth, Chas. F., 530 W. 21st St., New York
Hunter & Co., J. A., 233 Broadway, New York
Indiana Quartered Oak Co., Long Island City, N. Y.
Kalt Lumber Co., 320 E. 64th St., New York
Mengel & Bro. Co., C. C., 33 W. 42d St., New York
Monteath Co., J. H., 202 Lewis St., New York
National Timber Co., Mobile, Ala.
Neill & Spanjer, 8 Lister Av., Newark, N. J.
Pearson, C. H., 29 Broadway, New York
Walter Lumber Co., H. R., Pittsburgh
Williams & Sons, Ichabod T., 11th Av. & 25th St., New York
Wyatt-Prock Lumber Co., Philadelphia

MALLETS, Carpenters

American Woodworking Co., New York
Buchle Sons Mfg Co., Cincinnati
Campbell Mfg Co., G. W., 253 Broadway, New York
Cutter & Woods Supply Co., Boston
Ducommun Hardware Co., San Francisco
Joe Burr's Hardware Co., Savannah, Ga.
Kemp Machinery Co., Baltimore
Newton Falls Mfg Co., Newton Falls, Ohio
N. Y. Mallet & Handle Works, 743 E. 11th St., New York
Novelty Turning Co., Norway, Me.
Peck, Stow & Wilcox Co., 46 W. Broadway, New York
Pequa Handle Mfg Co., Pequa, Ohio
Ryther-Purdy Lumber Co., G. C. T., New York
Sargent & Co., 94 Centre St., New York
Shapleigh Hardware Co., St. Louis, Mo.
Tiebout, W. & J., 118 Chambers St., New York, see p. 59

MALLETS, Caulking, Hawsing & Serving

Campbell Mfg Co., C. W., 253 Broadway, New York
Drew & Co., Kingston, Mass.
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Galbraith & Son, C. C., 117 West St., New York
Hamilton Mfg Co., Two Rivers, Wis.
Hendry & Co., C. J., San Francisco
Laughlin Co., The Thos., Portland, Me.
Marine Supply Co., Seattle, Wash.
Neptune Hardware Mfg Co., 80 Warren St., New York
N. Y. Mallet & Handle Works, 743 E. 11th St., New York
Pierce & Chesworth, Inc., Gardner, Mass.
Seib Bros., Boyd Av., Newark, N. J.
Stiles & Co., H. A., Boston
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
Topping Bros., 122 Chambers St., New York
Wilcox, Crittenden & Co., Middletown, Conn.
Woodward, Wright & Co., Ltd., New Orleans, La.

MALLETS, Rawhide

Central Foundry & Supply Co., Columbus, Ohio
Chicago Rawhide Mfg Co., Chicago
Cutter & Woods Supply Co., Boston
Hollbrook Rawhide Co., Providence, R. I.

Machinists' Supply Co., Pittsburgh

Obermayer & Co., S., Cincinnati
Topping Bros., 122 Chambers St., New York

MALLETS, Tanners

Emrich, P., 824 Main St., Cincinnati
Hellenberg Co., J. B., Cold Water, Mich.
Manning, Maxwell & Moore, 119 W. 40th St., New York
Niagara Mach. & Tool Co., Buffalo
Seib Bros., 96 Boyd Av., Jersey City, N. J.
Stanley Rule & Level Co., The, New Britain, Conn.
Surpluss, Dunn & Co., 74 Murray St., New York
Tucker & Dorsey Mfg Co., Indianapolis, Ind.

MANDRELS, Expanding

Brown & Sharpe Mfg Co., Providence, R. I.
Cochrane-Bly Co., Rochester, N. Y.
Manufacturers' Equipment Co., Chicago
Morse Twist Drill & Mach Co., New Bedford, Mass.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Niles-Bement-Pond Co., 111 Broadway, New York
Pratt & Whitney, 111 Broadway, New York
Western Tool & Mfg Co., The, Springfield, Ohio

MANDRELS, Solid

Advance Tool Co., Cincinnati
Atkins & Co., E. C., Indianapolis, Ind.
Cleveland Twist Drill Co., Cleveland
Lincoln Twist Drill Co., Taunton, Mass.
Morse Twist Drill Co., New Bedford, Mass.
National Twist Drill & Tool Co., Detroit, Mich.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Standard Tool Co., The, Cleveland

MANGANESE BRONZE (See Bronze, Manganese)**MANGANESITE COMPOUND**

Greig, John, 39 Cortlandt St., New York
Johns-Manville Co., H. W., Madison Av., New York
Pitcairn Varnish Co., Milwaukee, Wis.
Vulcan Asbestos Mfg Co., 95 Broad St., New York

MANIFOLDS (See Valves, Manifold)**MANILA AND SISAL (See Also Cordage & Rope)**

Whitlock Cordage Co., 46 South St., New York, see p. 27

MAPLE

Arrow Lumber Co., Parkersburg, W. Va.
Atlantic Lumber Co., Mason Bldg., Boston
Babcock Lumber Co., 43 Wall St., New York
Burritt, A. W., Bridgeport, Conn.
Cross Bros. Lumber Co., Philadelphia
Davis Lumber Co., E. L., Louisville, Ky.
Douglass, Geo., 317 West St., New York
Elias & Bro., G., 965 Elk St., New York
Emporium Lumber Co., G. C. Terminal, New York
Forest Lumber Co., 1270 Broadway, New York
Haas Lumber Co., R. L., 233 Broadway, New York
Hall Lumber Co., The Thomas, Charleston, W. Va.
Heinemann Lumber Co., B., Wausau, Wis.
Hofferberth, Chas. F., 530 W. 21st St., New York
Johnson Bros., 45 Classon Av., Brooklyn, N. Y.
Meeks, L. J., Muncie, Ind.
Milne, Hall & Johns Co., Inc., Cincinnati
National Timber Co., Mobile, Ala.
North Vernon Lumber Co., No. Vernon, Ind.
Plunkett Webster Lbr. Co., The, 33 W. 42d St., New York
Sanderson & Co., S. B., Menominee, Mich.
Stimson Veneer & Lumber Co., Memphis, Tenn.
Wayne Lumber Co., 110 W. 40th St., New York
Woodstock Lumber Co., 131 State St., Boston
Yates Lumber Co., John B., Pennsboro, W. Va.
Youngs & Bros., Wm. P., 1st Av. and 35th St., New York

MARINE GLUE (See Glue, Marine)**MARINE HARDWARE (See Specific Headings)****MARINE PLUMBING (See Plumbing, Marine)****MARINE RAILWAYS (See Shipbuilding & Repair Section)****MARKING SETS, Die**

Hanson Co., The C. H., 180 No. Clark St., Chicago
Matthews & Co., Jas. H., Pittsburgh

Pannier Bros. Stamp Co., Pittsburgh
Pittsburgh Steel Stamp Co., Pittsburgh
Schwerdtle Stamp Co., The, Bridgeport

MARLINE, Tarred & Untarred

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
Chatfield & Woods Co., The, Cincinnati
Columbian Rope Co., Auburn, N. Y.
De Grauw Aymar & Co., 34 South St., New York
Dolphin Jute Mills, Patterson, N. J.
Flocker & Co., John, 957 Liberty Av., Pittsburgh
Grady Co., M. J., 60 Thomas St., New York
Granger Co., Inc., Geo. B., 66 Broadway, New York
Hanover Cordage Co., Hanover, Pa.
Hoffman-Corr Mfg Co., 318 Lafayette St., New York
Humphrey's Sons, R. H., 1020 Callowhill St., Philadelphia
Kelly Co., Henry C., 35 Worth St., New York
Ludlow Mfg Ass'n, 111 Devonshire St., Boston
Macwhyte Co., Kenosha, Wis.
Mersick & Co., C. S., New Haven, Conn.
New Bedford Cordage Co., 120 Broadway, New York
Plymouth Cordage Co., No. Plymouth, Mass.
Upson-Walton Co., Cleveland
Whitlock Cordage Co., 46 South St., New York, see p. 27
Winne Co., D. P., 105 Worth St., New York

MASTS, Tubular Steel

Lebanon Boiler Works, Lebanon, Pa.
National Tube Co., Pittsburgh

MASTS & SPARS, Wood

American Mast & Spar Corp, 110 W. 40th St., New York
Booz Bros., 815 Key Highway, Baltimore
Bowers & Andrews, 153 Stuart St., San Francisco
Cambridge Mfg Co., Cambridge, Md.
Camden-Anchor-Rockland Mach. Co., Camden, Me.
Cookson & Callahan, San Pedro, Cal.
Dutton Lbr. Corp, A. C., G. C. T., New York
Endner, Inc., Al. M., Brooklyn, N. Y.
International Spar Co., Seattle, Wash.
Southland Steamship Co., Savannah, Ga., see p. 101
Trebing Mfg Co., Cleveland, Ohio
Western Spar Co., Portland, Ore.

MATS, Cargo, Rope

Grady Co., Inc., M. J., 60 Thomas St., New York
Upson-Walton Co., Cleveland
Wattie, W. M., Worcester, Mass.

MATS, Cocoa

Darragh Smail & Co., 177 Waters St., New York
Empire Cocoa Matting Co., 425 Broadway, New York
Heywood Bros. & Wakefield Co., Gardner, Mass.
Rancocas Mills, Trenton, N. J.

MATS, Collision & Rope (See Also Canvas Goods)

Atlantic-Pacific Mfg Co., 124 Atlantic Av., Bklyn., N. Y.
Barnett, Inc., E. H., 37 Newark Av., Jersey City, N. J.
Bendus, J. V., 39 Cortlandt St., New York
Bottger Bros. & Co., Ft. Hubbard St., Brooklyn, N. Y.
College Point Boat Corp, College Point, L. I., N. Y.
Cousens & Pratt, 274 Summer St., Boston
Delue & Co., Inc., 77 Summer St., Boston
Haviside Co., San Francisco
Hooper & Sons Co., W. E., Baltimore
Pacific Tent & Awning Co., Portland, Ore.
Rowe & Son, Inc., E. L., Gloucester, Mass.
U. S. Tent & Awning Co., Chicago

MATS, Wire Rope

Estey Wire Works Co., 34 Cliff St., New York
Parker Wire Goods Co., 369 Broadway, New York
Wickwire Spencer Steel Corp, Worcester, Mass.
Wire Goods Co., Worcester, Mass.

MATTING, Rubber Corrugated

Anchor Packing Co., Philadelphia
Boston Belting Corp, 100 Summer St., Boston
Boston Woven Hose & Rubber Co., Cambridge, Mass.
Brock Rubber Co., A. S., 57 Broad St., Boston, Mass.
Cincinnati Rubber Co., Cincinnati
Empire Rubber & Tire Co., Trenton, N. J.
Goodall Rubber Co., Inc., Philadelphia, see p. 54

Goodrich Rubber Co., B. F., Akron, Ohio
Goodyear Tire & Rubber Co. of Cal., Los Angeles
Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
Hewitt Rubber Co., 240 Kensington Av., Buffalo
Home Rubber Co., Trenton, N. J.
Johns-Manville Co., H. W., 41st St. & Madison Av., New York
Levick's Son & Co., H., 720 Chestnut St., Philadelphia
Manhattan Rubber Mfg Co., Passaic, N. J.
New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
Quaker City Rubber Mfg Co., 629 Market St., Philadelphia
United States Rubber Co., 1790 Broadway, New York, see p. 57
Voorhees Rub. Mfg Co., 18 Bostwick Av., Jersey City, N. J.

MATTING, Sword, Hemp

Macwhyte Co., Kenosha, Wis.
Plymouth Cordage Co., No. Plymouth, Mass.
Wall Rope Mfg Co., Beverly, N. J.

MATTRESS, Spring

Bernstein Mfg Co., Philadelphia
Foster Bros. Mfg Co., Utica, N. Y.
Rose Spring & Mattress Co., Memphis, Tenn.
Southern-Rome Co., Baltimore

MATRESSES, PILLOWS, CUSHIONS, Kapok, Hair & Felt

Atlantic-Pacific Mfg Co., 124 Atlantic Av., Bklyn., N. Y.
Bangor Mattress Co., Bangor, Me.
Cambridge Mattress & Bedding Co., Cambridge, Md.
Carpenter & Co., Geo. B., Chicago
College Point Boat Corp, College Point, L. I., N. Y.
Columbia Feather Co., 413 W. Huron St., Chicago
Empire Mattress Co., 2231 Madison St., Chicago
Fort Pitt Bedding Co., Pittsburgh
International Bedding Co., Baltimore
Lehigh Star Bedding Co., Allentown, Pa.
McRoskey & Co., 2008 Harrison St., San Francisco
Mebane Bedding Co., Mebane, N. C.
National Bedding Co., Leavenworth, Kan.
New York Mattress Co., 32 Greene St., Boston
Ohio Mattress Co., Cleveland
Ostermoor & Co., 116 Elizabeth St., New York
Peerless Bedding Co., Bellefontaine, Ohio
Puritan Fibre Co., 184 Summer St., Boston
Randall Mattress Co., Cleveland
Rose Spring & Mattress Co., Memphis, Tenn.
Schmidt Bedding Co., 966 30th St., Milwaukee, Wis.
Taylor Bedding Mfg Co., Taylor, Texas
Washington Mattress Co., Seattle, Wash.

MAULS, Riveters

Buschle Sons Mfg Co., 1635 Central Av., Cincinnati
Crerar Adams Co., Erie St. & Fairbanks, Chicago
Fairbanks Co., The, 416 Broome St., New York
McCarty & Co., J. C., 29 Murray St., New York
Manning, Maxwell & Moore, 119 W. 40th St., New York
Modern Tool & Machine Works, Inc., 350 Mulberry St., Newark, N. J.
Pierce & Chesworth, Inc., Gardner, Mass.
Rudolph & West, 1330 N. Y. Av., N. W., Washington, D. C.
Scully Steel & Iron Co., 2 Rector St., New York
Stanley Rule & Level Co., The, New Britain, Conn.
Topping Bros., 122 Chambers St., New York

MAULS, Ship or Top

Beall Bros., East Allen, Ill.
Block, Inc., John B., Chester, Pa.
Buschle Sons Mfg Co., 1635 Central Av., Cincinnati
Dienst Co., Inc., A. P., 2604 Third Av., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Evansville Tool Wks, Southern Bldg., Washington, D. C.
Fayette R. Plumb, Tucker & James St., Philadelphia
Handlan Buck Mfg Co., 212 N. 3d St., St. Louis, Mo.
Hubbard & Co., 50 Church St., New York
Iron City Tool Wks, 32d St. & Smallman St., Pittsburgh
Klein Logan Co., 265 S. 13th St., Pittsburgh
Livingston Cooper Corp., 131 E. 23d St., New York
Modern Tool & Machine Wks, Inc., 350 Mulberry St., Newark, N. J.
Pierce & Chesworth, Inc., Gardner, Mass.

Shapleigh Hardware Co., St. Louis, Mo.
 Stanley Rule & Level Co., The, New Britain, Conn.
 Verona Tool Works, Oliver Bldg., Pittsburgh
 Walden Butler Co., Inc., 51 Jamaica Av., Brooklyn, N. Y.
 Warren Tool & Forge Co., Warren, Ohio
 Warwood Tool Co., Wheeling, W. Va.

MECHANICAL DRAFT SYSTEMS

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 De Laval Steam Turbine Co., Trenton, N. J., see pp.
 106 & 107
 Howden & Co., James, Wellesville, N. Y.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Peabody Engineering Corp, 331 Madison Av., New York,
 see p. 65
 Reid & Co., John, 30 Church St., New York
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109
 Terry Steam Turbine Co., The, Hartford, Conn., see p. 110

MEDICINE CHESTS, Ships, with Medicines

McKesson & Robbins, 91 Fulton St., New York
 Oceanic Chemical Co., 49 Fulton St., New York

MEGAPHONES

Carpenter & Co., Geo. B., Chicago
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Laclede Brass Works, 307 edar St., St. Louis, Mo.
 Merriman Bros., 185 Amory St., Boston
 Upson Walton Co., Cleveland

MERCHANT IRON (See Iron, Merchant)

METERS, Oil (See Oil, Meters)

METERS, Water

Hersey Mfg Co., South Boston, Mass.
 National Meter Co., First Av., Brooklyn, N. Y.
 Neptune Meter Co., 50 E. 42d St., New York
 Pittsburgh Meter Co., Pittsburgh
 Union Water Meter Co., Worcester, Mass.
 Worthington Pump & Machinery Corp., 115 Broadway,
 New York, see pp. 74-81

MICA, Plate, Flexible & Pressed

American Mica Co., Newton Lower Falls, Mass.
 Arnessen Electric Co., 109 Broad St., New York
 Blood Co., W. E., 217 Centre St., New York
 Central Electric Co., Chicago, Ill.
 Dielectric Manufacturing Co., St. Louis, Mo.
 Dubilier Condenser Co., Inc., 217 Centre St., New York
 Fullerton Electric Co., 15 W. 20th St., New York
 Garton Co., W. R., The, 15 S. Desplains St., Chicago
 Keene Mica Products Co., Keene, N. H.
 Latham & Co., E. B., 550 Pearl St., New York
 Lincoln Electric Works, 1062 Glenlake Av., Chicago
 Macallen Co., Boston, Mass.
 Mica Insulator Co., 68 Church St., New York
 Mica Manufacturing Co., 135 Johnson St., Brooklyn, N. Y.
 Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Mitchell-Rand Mfg Co., 18 Vesey St., New York
 Ridlon Co., Frank, Boston
 Schoonmaker Co., A. O., 88 Park Pl., New York
 Shaw Insulator Co., 5 Kirk Place, Newark, N. J.
 Watson Bros., Inc., 170 Purchase St., Boston
 Wireless Improvement Co., 47 West St., New York

MICA SHEET, Cut & Uncut

American Mica Co., Newton Lower Falls, Mass.
 American Mica Works Co., 47 West St., New York
 Asheville Mica Co., Asheville, N. C.
 Blood Co., W. E., 217 Centre St., New York
 Central Electric Co., Chicago
 Dielectric Manufacturing Co., St. Louis, Mo.
 Dubilier Condenser Co., Inc., 217 Centre St., New York
 Ford Mica Co., 14 Christopher St., New York
 Fullerton Electric Co., 15 W. 20th St., New York
 Garton Co., W. R., The, 15 S. Desplains St., Chicago
 Keene Mica Products Co., Keene, N. H.
 Latham & Co., E. B., 550 Pearl St., New York

Lincoln Electric Works, 1062 Glenlake Av., Chicago
 Macallen Co., Boston
 Meirowsky Bros., Jersey City, N. J.
 Mica & Asbestos Corp, 193 Greenwich St., New York
 Mica Insulator Co., 135 Johnson St., New York
 Mica Manufacturing Co., 454 18th St., Brooklyn, N. Y.
 Mica Products Co., 111 Broadway, New York
 Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Mitchell-Rand Manufacturing Co., 18 Vesey St., New York
 N. England Mica Co., Inc., 66 Woerd Av., Waltham, Mass.
 New York Mica & Mfg Co., Auburn, N. Y.
 North Carolina Mica Co., Boston
 Producers Mica Co., Chicago
 Schoonmaker Co., A. O., 88 Park Place, New York
 Shaw Insulator Co., 5 Kirk Place, Newark, N. J.
 Sibley-Pitman Electric Corp, 190 Sixth Av., New York
 Stairs Mica Co., Oswego, N. Y.
 Suffern Co., Inc., 135 Broadway, New York
 Tar Heel Mica Co., The, Inc., Plumtree, N. C.
 Watson Bros., Inc., 170 Purchase St., Boston

MICROMETERS

Almond Mfg Co., T. R., Ashburnham, Mass.
 Browne & Sharpe Mfg Co., Providence, R. I.
 Coats Mach Tool Co., Inc., 110 W. 40th St., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Precision Instrument Co., Newark, N. J.
 Slocumb Co., J. T., Providence, R. I.
 Starrett & Co., L. S., Athol, Mass.
 Syracuse Twist Drill Co., Syracuse, N. Y.
 Warren-Knight Co., Philadelphia
 Weil & Co., J. H., Philadelphia

MILLBOARD, Asbestos

Belmont Packing & Rubber Co., Philadelphia
 Carey Manufacturing Co., Philip, Cincinnati
 Crowe & Co., F. F., 411 Globe Bldg., Seattle, Wash.
 Danubil Co., The, 253 Broadway, New York
 Dominion Asbestos & Rub. Co., 154 Nassau St., New York
 Ehret Magnesia Manufacturing Co., Valley Forge, Pa.
 Franklin Manufacturing Co., Franklin, Pa.
 Johns-Manville Co., H. W., 41st St. & Madison Av., New
 York
 Keasbey Co., Robert A., 445 West St., New York
 Keasbey & Mattison Co., Ambler, Pa.
 National Asbestos Mfg Co., 163 Henderson St., Jersey
 City, N. J.
 Norristown Magnesia & Asbestos Co., Norristown, Pa.
 Paxson Co., Jos. W., 1021 N. Delaware Av., Philadelphia
 Saal Mountain Co., 230 S. La Salle St., Chicago

MILLING ATTACHMENTS

Adams Company, 1902 Bridge St., Dubuque, Iowa
 Becker Milling Machine Co., Hyde Park, Mass.
 Brown & Sharpe Manufacturing Co., Providence, R. I.
 Cincinnati Milling Machine Co., Oakley, Cincinnati
 Cleveland Milling Machine Co., The, Cleveland
 Dow Manufacturing Co., Braintree, Mass.
 Eccles & Smith Co., San Francisco
 Fox Machine Co., Jackson, Mich.
 Garvin Machine Co., Spring & Varick Sts., New York
 Hendey Machine Co., Torrington, Conn.
 Henes, Louis G., San Francisco
 Ingersoll Milling Machine Co., The, Rockford, Ill.
 Kearney & Trecker Co., Milwaukee, Wis.
 Kempsmith Manufacturing Co., Milwaukee, Wis.
 Le Blond Machine Tool Co., The R. K., Cincinnati
 Miller & Crowningshield, Greenfield, Mass.
 Oesterlain Machine Co., Cincinnati
 Porter-Cable Machine Co., Syracuse, N. Y.

MILLING CUTTERS

Advance Tool Co., Cincinnati
 Alvord Reamer & Tool Co., Millersburg, Pa.
 Barber-Colman Co., Rockford, Ill.
 Becker Milling Machine Co., Hyde Park, Boston
 Bilton Machine Tool Co., Bridgeport, Conn.
 Bridgeport Cutter Works, Inc., Bridgeport, Conn.
 Brown & Sharpe Manufacturing Co., Providence, R. I.
 Cowles Tool Co., Cleveland
 Detroit Reamer & Tool Co., East Detroit, Mich.
 Geometric Tool Co., The, New Haven, Conn.

STERLING-COOPER CO., NEW YORK

Goddard & Goddard Co., Detroit, Mich.
 Henes, Louis G., San Francisco
 Ingersoll Milling Machine Co., The, Rockford, Ill.
 Kearney & Trecker, Milwaukee, Wis.
 Keene & Co., W. R., 90 W. Broadway, New York
 Lincoln Twist Drill Co., Taunton, Mass.
 Lovejoy Tool Co., Inc., Springfield, Vt.
 Morse Twist Drill & Machine Co., New Bedford, Mass.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Union Twist Drill Co., Athol, Mass.
 Whitney Manufacturing Co., The, Hartford, Conn.

MILLING MACHINES, Duplex

Garvin Machine Co., Spring & Varick Sts., New York
 Knight Machy Co., W. B., St. Louis, Mo.

MILLING MACHINES, Plain

Adams Co., The, 1902 Bridge St., Dubuque, Iowa
 Becker Milling Machine Co., Hyde Park, Mass.
 Betts Machine Co., Rochester, N. Y.
 Bickett Machine & Manufacturing Co., Cincinnati
 Bickford Machine Co., Greenfield, Mass.
 Bilton Mach. Tool Co., Housatonic Av., Bridgeport, Conn.
 Brown & Sharpe Manufacturing Co., Providence, R. I.
 Chicago Machine Tool Co., Chicago
 Cincinnati Milling Machine Co., Cincinnati
 Cleveland Milling Machine Co., Cleveland
 Coats Machine Tool Co., Inc., 30 Church St., New York
 Cochrane-Bly Co., Spring & Varick Sts., New York
 Dow Manufacturing Co., Braintree, Mass.
 Eccles & Smith Co., San Francisco
 Fox Machine Co., Jackson, Mich.
 Garvin Machine Co., Spring & Varick Sts., New York
 Gooley & Edlund, Inc., Cortland, N. Y.
 Greenfield Tap & Die Corp., Greenfield, Mass.
 Hendey Machine Co., Torrington, Conn.
 Hill, Clarke & Co., Inc., 156 Oliver St., Boston
 Ingersoll Milling Machine Co., The, Rockford, Ill.
 Kearney & Trecker Co., Milwaukee, Wis.
 Kempsmith Mfg Co., Milwaukee, Wis.
 Niles-Bement-Pond Co., 111 Broadway, New York
 Ryerson & Son, Jos. T., Chicago
 Steptoe Co., John Cincinnati

MILLING MACHINES, Portable

Henes, Louis G., San Francisco
 Newton Machine Tool Works, Philadelphia
 Underwood Corp, H. B., Philadelphia

MILLING MACHINES, Universal

Becker Milling Machine Co., Hyde Park, Boston
 Betts Machine Co., Rochester, N. Y.
 Cincinnati Milling Machine Co., Cincinnati
 Cleveland Milling Machine Co., Cleveland
 Dow Manufacturing Co., Braintree, Mass.
 Eccles & Smith Co., San Francisco
 Fox Machine Co., Jackson, Mich.
 Garvin Machine Co., Spring & Varick Sts., New York
 Hendey Machine Co., Torrington, Conn.
 Hill, Clarke & Co., Inc., 156 Oliver St., Boston
 Kearney & Trecker Co., Milwaukee, Wis.
 Kempsmith Mfg Co., The, Milwaukee, Wis.
 Le Blond Machine Tool Co., R. K., Cincinnati
 Newton Machine Tool Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Oesterlein Machine Co., Cincinnati
 Ryerson & Son, Jos. T., Chicago

MILLING MACHINES, Vertical

Adams Co., The, 1902 Bridge St., Dubuque, Iowa
 Becker Milling Machine Co., Hyde Park, Mass.
 Bickett Machine & Manufacturing Co., Cincinnati
 Bristol Machine Tool Co., Bristol, Conn.
 Brown & Sharpe Manufacturing Co., Providence, R. I.
 Cincinnati Milling Machine Co., Cincinnati
 Cleveland Milling Machine Co., Cleveland
 Clough, R. M., Meriden, Conn.
 Greenfield Tap & Die Co., Greenfield, Mass.
 Henes, Louis G., San Francisco
 Ingersoll Milling Machine Co., Rockford, Ill.
 Kearney & Trecker Co., Milwaukee, Wis.
 Knight Machinery Co., W. Pine St., St. Louis, Mo.
 Le Blond Machine Tool Co., R. K., Cincinnati

Newton Machine Tool Wks, 23d & Vine Sts., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Potter & Johnston Machine Co., Pawtucket, R. I.
 Rockford Milling Machine Co., Rockford, Ill.
 Rogers Machine Tool Co., Alfred, N. Y.
 Van Norman Machine Tool Co., Wilbraham Av., Springfield, Mass.

MINERAL WOOL

Banner Rock Products Co., Alexandria, Ind.
 Columbia Mineral Wool Co., Chicago
 Gen'l Insulating & Mfg Co., St. Louis, Mo.
 Keasbey Co., Robt. A., 445 West St., New York
 Union Fibre Co., Inc., Winona, Wis.
 Union Insulating Co., Chicago
 U. S. Mineral Wool Co., 280 Madison Av., New York

MIRRORS, Searchlight

Bausch & Lomb Optical Co., Rochester, N. Y.
 Burre Mirror Plate Co., Bloomington, Ind.
 Gallagher, P. J., 24 N. Chambers St., New York
 Macbeth-Evans Glass Co., 19 W. 44th St., New York
 Matisse Corp, C. & A., 551 E. 116th St., New York
 Pittsburgh Plate Glass Co., Pittsburgh
 Stuart-Howland Co., 234 Congress St., Boston
 Westinghouse Electric & Mfg Co., Pittsburgh

MODELS, Ships, Litigation, etc.

Boucher Mfg Co., The H. E., 150 Lafayette St., New York, see p. 60

MONEL METAL, Rolled Bar & Rod

Amalgamated Products Co., 165 Broadway, New York
 Bayonne Casting Co., The, Bayonne, N. J.
 Chase Rolling Mills, Waterbury, Conn.
 Eagle Brass Foundry Co., Seattle, Wash.
 Electrical Alloy Co., Morristown, N. J.
 Hungerford Brass & Cop. Co., 80 Lafayette St., New York
 International Nickel Co., The, 43 Exchange Pl., New York
 Larkin & Co., J. K., 253 Broadway, New York
 Merchant & Evans Co., Philadelphia
 New York Iron & Steel Products Co., 143 Chambers St., New York
 Sandoval Zinc Co., Chicago
 Steel Sales Corp, Jefferson & Adams Sts., Chicago
 Trumpbour Whitehead Brass & Copper Co., 309 Canal St., New York

MONEL METAL, Sheet

Bayonne Casting Co., The, Bayonne, N. J.
 Brooklyn Alloys Co., 17 Walton St., Brooklyn, N. Y.
 Eagle Brass Foundry Co., Seattle, Wash.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 International Nickel Co., The, 43 Exchange Pl., New York
 Larkin & Co., J. K., 253 Broadway, New York
 Little, H. S., 766 Folsom St., San Francisco
 Nason Manufacturing Co., 71 Fulton St., New York
 Sandoval Zinc Co., Chicago
 Steel Sales Corp, Jefferson & Adams Sts., Chicago
 Supplee-Biddle Hardware Co., Philadelphia
 Trumpbour Whitehead Brass & Copper Co., 309 Canal St., New York

MOTOR GENERATOR SETS

Allen-Bradley Co., Milwaukee, Wis.
 Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
 American Radio & Research Co., 21 Park Row, New York
 Arnessen Electric Co., Inc., 109 Broad St., New York
 Automatic Electric Co., 1001 W. Van Buren St., Chicago
 Bell Electric Motor Co., Garwood, N. J.
 Bennett-O'Connell & Co., 3600 S. Morgan St., Chicago
 Bissell Company, The F., 226 Huron St., Toledo, Ohio
 Burke Electric Co., 12th & Cranberry Sts., Erie, Pa.
 Central Electric Co., Chicago
 Colonial Fan & Motor Co., Warren, Ohio
 Crocker-Wheeler Co., Ampere, N. J.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Diehl Manufacturing Co., Elizabeth, N. J.
 Eck Dynamo & Motor Co., Belleville, N. J.
 Electric Specialty Co., Stamford, Conn.

STERLING-COOPER CO., NEW YORK

Electro Dynamic Co., 11 Pine St., New York
 Electromotor Co., 40 S. Clinton St., Chicago
 Fidelity Electric Co., Lancaster, Pa.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gordon Co., Claude S., Chicago
 Great Lakes Electric Mfg Co., 200 N. Jefferson St., Chicago
 Hobart Bros. Co., The, Troy, Ohio
 Holtzer-Cabot Electric Co., The, Gladstone, Mich.
 Hommedieu & Sons, Chas. L., 4521 Ogden Av., Chicago
 International Radio Telegraph Co., 326 Bway., New York
 Janette Mfg Co., 617 W. Jackson Blvd., Chicago
 Lowenstein Radio Co., Inc., 399 Bridge St., Bklyn., N. Y.
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Marble Card Electric Co., Gladstone, Mich.
 Mine Safety Appliance Co., Pittsburgh
 Northwestern Manufacturing Co., Milwaukee, Wis.
 Ostrander & Co., W. R., 371 Broadway, New York
 Peerless Electric Co., Warren, Ohio
 Reynolds Electric Co., 422 So. Salmon Av., Chicago
 Ridlon Co., Frank, Boston
 Robbins & Myers Manufacturing Co., Springfield, Ohio
 Roth Bros. & Co., Adams & Loomis Sts., Chicago
 Sprague Electric Works, 527 W. 34th St., New York
 Star Dynamo Co., Jefferson City, Mo.
 Tideman Electric Mfg Co., Menominee, Mich.
 Triumph Electric Co., Oakley, Cincinnati
 Welding Equipment Co., 521 W. 45th St., New York
 Wetmore-Savage Co., 76 Pearl St., Boston
 Western Electric Co., 151 Fifth Av., New York

MOTOR GENERATORS, Radio

Amer. Radio & Research Corp., 21 Park Row, New York
 Bodine Electric Co., Ohio St. & Oakley Blvd., Chicago
 Burke Electric Co., Erie, Pa.
 Central Electric Co., Chicago
 Crocker-Wheeler Co., Ampere, N. J.
 Cushman Electric Co., Concord, N. H.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Diehl Mfg Co. (Direct Current), Elizabeth, N. J.
 Eck Dynamo & Motor Co., Belleville, N. J.
 Electric Specialty Co., Stamford, Conn.
 Electro Dynamic Co., 11 Pine St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Great Lakes Elec Mfg Co., 200 N. Jefferson St., Chicago
 Holtzer-Cabot Electric Co., The, 125 Amory St., Boston
 Ideal Electric & Mfg Co., The, Mansfield, Ohio
 International Radio Telegraph Co., 326 Bway., New York
 Lowenstein Radio Co., Inc., 399 Bridge St., Bklyn., N. Y.
 Radio Corporation of America, 233 Broadway, New York, see p. 83
 Robbins & Myers Mfg Co., Springfield, Ohio
 Simon, Emil J., 217 Broadway, New York
 Tideman Electric Mfg Co., Menominee, Mich.
 Triumph Electric Co., Cincinnati
 Wireless Improvement Co., 47 West St., New York

MOTORS, A. C. & D. C.

Allen-Bradley Co., Milwaukee, Wis.
 Allis-Chalmers Co., Milwaukee, Wis.
 Arnessen Electric Co., 109 Broad St., New York
 Burke Electric Co., 12th & Cranberry Sts., Erie, Pa.
 Bell Electric Motor Co., Garwood, N. J.
 Bessill Co., The F., 226 Huron St., Toledo, Ohio
 Betts & Betts Corp., 511 W. 42d St., New York
 Bodine Electric Co., Ohio & Oakley Blvd., Chicago
 Central Electric Co., Chicago
 Colonial Fan & Motor Co., Warren, Ohio
 Crocker-Wheeler Co., Ampere, N. J.
 Cushman Electric Co., Concord, N. H.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Diehl Manufacturing Co., Elizabeth, N. J.
 Electro Dynamic Co., 11 Pine St., New York
 Fairbanks-Morse & Co., 900 S. Wabash Av., Chicago
 Fidelity Electric Co., Lancaster, Pa.
 Fullerton Electric Co., 15 W. 20th St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gordon Co., Claude S., Chicago
 Hall Motors, C. O., 147 W. 35th St., New York
 Herzog Electric & Engineering Co., San Francisco

Hobart Bros. Co., The, Troy, Ohio
 Holtzer-Cabot Electric Co., The, 125 Amory St., Boston
 Ilg Electric Ventilating Co., 154 Whitney St., Chicago
 Janette Manufacturing Co., 617 W. Jackson Bldg., Chicago
 Jantz & Leist Electric Co., Cincinnati
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Marathon Electric Manufacturing Co., Wausau, Wis.
 Northwestern Manufacturing Co., Milwaukee, Wis.
 Peerless Electric Co., Warren, Ohio
 Ridlon Co., Frank, Boston
 Robbins & Myers Manufacturing Co., Springfield, Ohio
 Roth Bros. & Co., Adams & Loomis Sts., Chicago
 Sibley-Pitman Electric Corp., 190 Sixth Av., New York
 Sprague Electric Works, 527 W. 34th St., New York
 Star Dynamo Co., Jefferson City, Mo.
 Tideman Electric Manufacturing Co., Menominee, Mich.
 Triumph Electric Co., Oakley, Cincinnati
 Welding Equipment Co., 521 W. 45th St., New York
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wetmore-Savage Co., 76 Pearl St., Boston

MOTORS, Blower Quenched Gap

American Radio Research Co., 21 Park Row, New York
 Central Electric Co., Chicago
 Crocker-Wheeler Co., Ampere, N. J.
 Diehl Mfg Co., Elizabeth, N. J.
 Eck Dynamo & Motor Co., Belleville, N. J.
 Electro Dynamic Co., 11 Pine St., New York
 Holtzer-Cabot Electric Co., The, 125 Amory St., Boston
 Ilg Electric Ventilating Co., 154 Whitney St., Chicago
 International Radio Telegraph Co., 326 Bway., New York
 Lowenstein Radio Co., Inc., 399 Bridge St., Bklyn., N. Y.
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Northwestern Mfg Co., Milwaukee, Wis.
 Ridlow Co., Frank, Boston
 Simon, Emil J., 217 Broadway, New York
 Sprague Elec Wks of G. E. Co., 527 W. 34th St., New York
 Tideman Electric Mfg Co., Menominee, Mich.

MOTORS, Carbon Rotating Arc Type

American Radio & Research Co., 21 Park Row, New York
 Arnessen Electric Co., 109 Broad St., New York
 Eck Dynamo & Motor Co., Belleville, N. J.
 Electro Dynamic Co., 11 Pine St., New York
 Fullerton Electric Co., 15 W. 20th St., New York
 Ridlon Co., Frank, Boston
 Robbins & Myers Mfg Co., Springfield, Ohio
 Simon, Emil J., 217 Broadway, New York
 Sprague Electric Wks of G. E. Co., 527 W. 34th St., New York

MUNTZ, Metal Sheet

Amalgamated Products Co., 165 Broadway, New York
 Baltimore Tube Co., Baltimore
 British-American Metals Co., 52 Vanderbilt Av., New York
 Central Metal Supply Co., 609 E. Lombard St., Baltimore
 Chase Rolling Mills, Waterbury, Conn.
 Electrical Alloy Co., Morristown, N. Y.
 Gummey MacFarland Co., Philadelphia
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Illinois Smelt. & Refin. Co., 410 No. Peoria St., Chicago
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Merchant & Evans Co., 2019 Washington St., Philadelphia
 Midwest Brass & Copper Co., 480 Broome St., New York
 National Brass & Cop. Tube Co., 41 Park Row, New York
 North Atlantic Metal Corp., 29 Broadway, New York
 Sandoval Zinc Co., Chicago
 Whitehead Metal Products Co., Boston
 Whittaker Glessner Co., Wheeling, W. Va.

MUSLIN, Insulating, Linen Oiled

Blood & Co., W. E., 33 W. 42d St., New York
 Dielectric Manufacturing Co., St. Louis, Mo.
 Irvington Varnish & Insulator Co., Irvington, N. J.
 Mica Insulator Co., 68 Church St., New York
 Schenectady Linonite Co., Schenectady, N. Y.
 Ville, Blackwell & Buck, 49 Wall St., New York

STERLING-COOPER CO., NEW YORK

N

NAILS, Cut, Copper

Atlas Tack Co., Fairhaven, Mass.
 Broadway Hardware Co., Newport, R. I.
 Clendenin Bros., 120 Broadway, New York
 Cleveland Tack Co., Cleveland
 Hassall, Inc., John, 402 Oakland St., Brooklyn, N. Y.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Hussey & Co., C. G., 504 W. 24th St., New York
 Malleable Iron Fittings Co., Branford, Conn.
 Milwaukee Tack Co., Wahl & 27th Av., Milwaukee, Wis.
 Patterson Bros., 27 Park Row, New York

NAILS, Cut, Composition, Sheathing

Broadway Hardware Co., Newport, R. I.
 Cleveland Tack Co., Cleveland, Ohio
 Hassall, Inc., John, 402 Oakland St., Brooklyn, N. Y.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Merchant & Evans Co., 242 Water St., New York
 Laughlin Co., The Thomas, Portland, Me.
 Topping Bros., 122 Chambers St., New York
 Trumbour Whitehead Brass & Copper Co., 309 Canal St., New York
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.

NAILS, Cut, Iron

Baker & Son, George, Brockton, Mass.
 Broadway Hardware Co., Newport, R. I.
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Cleveland Tack Co., Cleveland
 Fuller Bros. & Co., 139 Greenwich St., New York
 Galbraith & Son, C. C., 117 West St., New York
 Igoe Bros., 69 Metropolitan Av., Brooklyn, N. Y.
 Malleable Iron Fittings Co., Branford, Conn.
 Milwaukee Tack Co., Wahl & 27th Av., Milwaukee, Wis.
 Montgomery & Co., Inc., 105 Fulton St., New York
 Penn Tack Co., The, Norristown, Pa.
 Richmond Screw Anchor Co., Pulitzer Bldg., New York
 Wilcox, Crittenden & Co. (Galvanized), Middletown, Conn.

NAILS, Wire, Steel

Atlas Tack Co., Fairhaven, Mass.
 Broadway Hardware Co., Newport, R. I.
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Cambrai Steel Co., 165 Broadway, New York
 Grammes & Sons, L. F., Allentown, Pa.
 Hassall, Inc., John, 402 Oakland St., Brooklyn, N. Y.
 Hirsch & Co., Inc., L. C.
 Igoe Bros., 69 Metropolitan Av., Brooklyn, N. Y.
 Illinois Nail Co., 826 Dix St., Chicago
 Jolley & Co., J. H., Philadelphia
 Jones & Laughlin Steel Co., Pittsburgh
 Judd & Co., H. L., 87 Chambers St., New York
 Larkin & Co., J. K., 253 Broadway, New York
 National Lock Co., Rockford, Ill.
 N. Y. Iron & Steel Products Co., 143 Chambers St., New York
 Pittsburgh Steel Co., Union Arcade Bldg., Pittsburgh
 Turner & Seymour Mfg Co., Torrington, Conn.
 Smith & McCorken, Inc., 407 E. 18th St., New York
 Wickwire Bros., Inc., Cortlandt, N. Y.
 Wilcox Crittenden Co., Middletown, Conn.
 Wilson Steel Products Co., Chicago

NAME PLATES

Crown Name Plate & Engraving Co., 141 W. 36th St., New York
 Eagle Brass & Fdry Co., 21 Spokane St., Seattle, Wash.
 Premier Metal Etching Co., Long Island City, N. Y.
 U. S. Metal Specialty Co., Long Island City, N. Y.

NAUTICAL INSTRUMENTS (See Aledades

Anemometers
 Azimuth Instruments
 Barometers
 Bars, Flinders
 Binnacles

Chronometers
 Clocks
 Compass
 Logs
 Magnetic Sets
 Pelorus
 Sextants
 Sounding Machines, etc.)

NAVAL ARCHITECTS (See Also Engineers, Marine)

Aiken, F. J., New Orleans, La.
 Barney Morgan, 187 Greenwich Av., New York
 Chapman & Fisher, Philadelphia
 Cox & Stevens, 15 Williams St., New York
 Crandall Engineering Co., Boston
 Dickie, D. W. & R. Z., San Francisco
 Donald, Jas., 17 Battery Place, New York
 Edwards Engineering Co., The, Philadelphia
 Ferris, Theodore E., 30 Church St., New York
 Gardner & Co., Wm., 1 Broadway, New York
 Gielow & Orr, 52 Broadway, New York
 Harris, Leonard B., 111 Broadway, New York
 Hough, Edward S., San Francisco
 Hull, Ernest H., 10 E. 47th St., New York
 Isherwood, J. W., 17 Battery Pl., New York
 Johnson, Inc., Eads, 115 Broadway, New York
 Johnson, Warren, New Orleans, La.
 Jones, Frank Bowen, 29 Broadway, New York
 Kindlund & Drake, 17 Battery Place, New York
 Lennon, H. A., San Francisco
 Lord, F. K., 120 Broadway, New York
 McKinlay, James, Portland, Ore.
 Mower, Chas. D., 347 Madison Av., New York
 Nelson, Leonard J., Baltimore
 Palanca, A., 291 Broadway, New York
 Pommer, W. E., Milwaukee, Wis.
 Rimmer, A. C., 149 Broadway, New York
 Scheel, K. H., Pier 1, Seattle, Wash.
 Seasbury & De Zafra, Inc., 150 Nassau St., New York
 Watts, J. Murray, Philadelphia
 Webb, J. Beavor, 27 Cedar St., New York
 Young, Benjamin P., 2 Stone St., New York

NEEDLES, Sailmakers, Reduced Edge, Short Square

American Needle Works, 12 Wooster St., New York
 Banks & Co., F. S., 78 Reade St., New York
 Boker Cutlery & Hardware Co., 101 Duane St., New York
 Frank, Richard & Gardner Co., 47 South St., New York
 Goldberger Mfg Corp, 36 E. 23d St., New York
 Hendry Co., C. J., 27 Main St., San Francisco
 Messer Co., Wm., 27 Suffolk St., New York
 Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14
 Osborne Co., C. S., Harrison, N. J.
 Shapleigh Hardware Co., St. Louis, Mo.
 Smith & Son, Jas., 40 Franklin Av., Brooklyn, N. Y.
 Weco Mfg Co., 101 Duane St., New York
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.

NETS, Cargo, Chain

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
 United States Chain & Forging Co., Union Arcade, Pittsburgh, see p. 15

NETS, Cargo, Rope

Bottger Bros. & Co., Brooklyn, N. Y.
 Chandler, Ernest, New York
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Jackson & Co., Irvin, Mobile, Ala.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle, Wash.
 Weeks-Howe-Emerson Co., San Francisco

NICKEL

Boker & Co., Inc., H., 101 Duane St., New York
 Eagle Brass Foundry Co., Seattle, Wash.
 Electrical Alloy Co., Morristown, N. J.
 International Nickel Co., 43 Exchange Pl., New York

NIGGERHEADS & GYPSIES (See Also Hoisting Engines)

STERLING-COOPER CO., NEW YORK

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
see p. 100

Central Foundry Co., 90 West St., New York
Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, see p. 30
Thatcher Propeller & Foundry Corp., Albany, N. Y.
(See also *Capstans & Winches*)

NIPPERS, DIAGONAL Cutting & End Cutting
Bowman-Edson Co., M. K., 65 Dey St., New York
Bridgeport Hardware Mfg Corp., Bridgeport, Conn.
Brombacker & Co., A. F., 31 Fulton St., New York
Carson Newton Co., Newark, N. J.
Champion Tool Co., Meadville, Pa.
Chandler & Farquhar Co., 32 Federal St., Boston
Crank & Carrier, Elmira, N. Y.
Cutter & Woods Supply Co., 68 Pearl St., Boston
Daves, Hunt, Colester Hardware Co., Cleveland
Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58

Enders, Inc., Albertlee, Minn.
Fairbanks Co., 416 Broome St., New York
Field & Co., A., 93 Chambers St., New York
Foard-Barstow, Ship Chandlery Co., San Francisco
Goodell-Pratt Co., Greenfield, Mass.
Hammacher, Schlemmer & Co., 133 Fourth Av., New York
Harris & Co., Samuel, 114 N. Clinton St., Chicago
Irvington Mfg Co., Irvington, N. J.
Kemp Machine Co., 223 N. Calvert St., Baltimore
Kreuter & Co., 577 18th Av., Newark, N. J.
Kurzton, Chas., 159 E. Houston St., New York
Machinists' Supply Co., Pittsburgh
Manning, Maxwell & Moore, 119 W. 40th St., New York
Osborne & Co., C. S., Harrison, N. J.
Peck, Stow & Wikox Co., 46 W. Broadway, New York
Pruden Hardware Co., W. E., 258 W. 52d St., New York
Sargent & Co., 94 Centre St., New York
Schollhorn Co., Wm., New Haven, Conn.
Shapleigh Hardware Co., St. Louis, Mo.
Smith & Hemenway Co., Irvington Centre, N. J.
Starrett Co., The L. S., Athol, Mass.
Strelling Co., Chas. A., 43 Larned St., Detroit, Mich.
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
United Shoe Machy Co., 205 Lincoln St., Boston
Utica Drop Forge & Tool Co., Utica, N. Y.
Wall Tool & Supply Co., T. P., 25 Leonard St., New York
Whitman & Barnes, Akron, Ohio

NIPPLES (See Pipe Fittings & Flanges)

NIPPLES, Air Hose, Brass

Allen Fire Dept. Supply Co., 43 Murray St., New York
Chicago Nipple Mfg Co., Chicago
Elkhart Brass Mfg Co., Elkhart, Ind.
Farnan Brass Works, 1104 Centre St., Cleveland
Glauber Brass Mfg Co., Superior St., Cleveland
Goodall Rubber So., Inc., Philadelphia, see p. 54
Ingersoll-Rand Co., 11 Broadway, New York
Judd-Leland Mfg Co., Clifton Springs, N. Y.
United States Rubber Co., 1790 Broadway, New York,
see p. 57

Ware Coupling & Nipple Co., Ware, Ind.
White Mfg Co., J. H., 111 Third St., Brooklyn, N. Y.
Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

NITRIC ACID (See Acid Sulphuric)

NOZZLES, Fire

Allen Fire Dept. Supply Co., 43 Murray St., New York
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Elkhart Brass Mfg Co., Elkhart, Ind.
Farnan Brass Works, Cleveland
Goodall Rubber So., Inc., Philadelphia, see p. 54
Hayward & Co., S. F., 250 W. 54th St., New York
Kelly & Jones Co., Greensburg, Pa.
Morse & Sons, Andrew J., Boston
Safety Fire Extinguisher Co., The, 291 Seventh Av., New York
White Mfg Co., J. H., 111 Third Av., Brooklyn, N. Y.
Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill, Philadelphia, see p. 124

NUTS (See Bolts & Nuts)

NUTS, Case Hardened

Cincinnati Screw Co., Cincinnati

Falls Rivet Co., Kent, Ohio
Milton Mfg Co., Milton, Pa.
Reed & Prince Mfg Co., Worcester, Mass.
Russell, Burdsall & Ward Bolt & Nut Co., Portchester, N. Y.

NUTS, Lock & Jam

American Steel Export Co., 233 Broadway, New York
Bethlehem Steel Co., Bethlehem, Pa.
Clark Bros. Bolt Co., Middletown, Pa.
Drake Lock Nut Co., San Francisco
Garland Nut & Rivet Co., 523 Third Av., Pittsburgh
Gaskell & Son, Wm., 59 Freeman St., Brooklyn, N. Y.
Milton Manufacturing Co., Milton, Pa.
National Acme Co., 7500 Stanton Av., Cleveland
Neely Nut & Bolt Co., 26 S. 22d St., Pittsburgh
Oliver Iron & Steel Co., Pittsburgh
Pittsburgh Screw & Bolt Co., Pittsburgh
Russell, Burdsall & Ward Bolt & Nut Co., Portchester, N. Y.
Schaper Construction Material Co., 90 West St., New York
Upson Nut Co., Scranton Road, Cleveland
Wallace Barnes Co., 118 Wallace St., Bristol, Conn.
Safety Nut & Bolt Co., Cleveland

NUTS, Machine Screw, Brass & Steel

Artistic Bronze Co., Bridgeport, Conn.
Atlas Bolt & Screw Works, Ivanhoe Rd., Cleveland
Broadway Hardware Co., Newport, R. I.
Brunswick Mfg Co., San Francisco
Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
Butts & Ordway Co., 32 Purchase St., Boston
Chicago Nut Co., 2513 W. 20th St., Chicago
Corbin Screw Corp., New Britain, Conn.
Davis & Hemphill, Elkbridge, Md.
Detroit Screw Works, 346 Franklin St., Detroit, Mich.
Eureka Co., 120 Broadway, New York
Frasse, Inc., Peter A., 417 Canal St., Brooklyn, N. Y.
Garland Mfg Co., West Pittsburgh, Pa.
Gould-Mercereau Co., 52 W. 38th St., New York
Hartford Machine Co., Elkbridge, Md.
Jolley & Co., J. H., 42 N. Fifth St., Philadelphia
Livermore, H. F., 85 Pearl St., Boston
Manning, Maxwell & Moore, 119 W. 40th St., New York
Marwedel, C. W., San Francisco
Michelman & Gorden Iron Wks, Inc., 267 Wyckoff Av., Brooklyn, N. Y.
Milton Mfg Co., Milton, Pa.
Moran Bolt & Nut Co., Fla & 1st Sts., St. Louis, Mo.
Progressive Mfg Co., Providence, R. I.
Reed & Prince Mfg Co., Worcester, Mass.
Russell, Burdsall & Ward Bolt & Nut Co., Portchester N. Y.
Russell Mfg Co., Naugatuck, Conn.
St. Louis Screw Co., St. Louis, Mo.
Scoville Mfg Co., Waterbury, Conn.
Victor Screw Works, 240 John St., Detroit, Mich.
Western Brass Mfg Co., 2007 Marshall Blvd., Chicago
Worcester Machine Screw Co., Worcester, Mass.

NUTS, Pipe Wrench

Bonney Vise & Tool Works, Allentown, Pa.
Bullock Mfg Ass'n, Springfield, Mass.
Dale Brewster Machy Co., Inc., 54 Lafayette St., New York
Fairbanks Co., 416 Broome St., New York
Erie Tool Works, 640 W. 12th St., Erie, Pa.
Flint & Chester, 237 Lafayette St., New York
Frank, Jr., Henry, 374 Hudson St., New York
Greenfield Tap & Die Co., Greenfield, Mass.
Kellogg Mackay Co., 419 W. 18th St., Chicago
Kemp Machine Co., 233 N. Calvert St., Baltimore
McCoy Co., Jos. F., 157 Chambers St., New York
Manning, Maxwell & Moore, 119 W. 40th St., New York
Machinists' Supply Co., Pittsburgh
Shapleigh Hardware Co., St. Louis, Mo.
Strellinger Co., Chas. A., 43 Larned St., Detroit, Mich.
Surplus Dunn & Co., 74 Murray St., New York
Tremont Mfg Co., Roxbury, Boston
Walls Tool & Supply Co., T. P., 25 Leonard St., New York

NUTS, Wing

Billings & Spencer, Hartford, Conn.
 Clapp & Son, E. D., Auburn, N. Y.
 Corbin Screw Corp, New Britain, Conn.
 Detroit Screw Works, 346 Franklin St., Detroit, Mich.
 Gartland Nut & Rivet Co., 523 Third Av., Pittsburgh
 Hartford Machine Screw Co., Hartford, Conn.
 Malleable Iron Fittings Co., Branford, Conn.
 Michigan Bolt & Nut Wks, Mildrum Av., Detroit, Mich.
 National Screw & Lock Co., Cleveland
 Reed & Prince Mfg Co., Worcester, Mass.
 Upson Nut Co., The, Cleveland

O**OAK, Fender****Quarter Sawed
White**

Adsit-Ward Lumber Co., Jersey City, N. J.
 Bacon, Hal, Savannah, Ga.
 Barker Bond Lbr. Co., 405 Lexington Av., New York
 Boyd-Sinclair Lbr. Co., 30 Church St., New York
 Burgess Bros. Co., Inc., 10 Dwight St., Brooklyn, N. Y.
 Burns & Co., John (Import Only), 50 Broad St., New York
 Carvin, E. T., 17 Battery Place, New York
 Central Timber Export Co., Inc., 115 Broadway, New York
 Clark & Cleale Co., Boston
 Coppock & Sons Lbr. Co., S. P., Fort Wayne, Ind.
 Cross, Austin & Ireland Lbr. Co., 1246 Grand St., Bklyn., N. Y.
 Deickmann, Jr., J. H., San Francisco
 Douglas, Geo., 317 West St., New York
 East River Mill & Lbr. Co., E. R. & 92d St., New York
 Ferguson & Palmer Co., Memphis, Tenn.
 Forest Lumber Co., 1270 Broadway, New York
 Hall Lbr. Co., The Thos., Charleston, W. Va.
 Higgins Lbr. & Export Co., A. J., New Orleans, La.
 Hoskins Lbr. Co., J. S., Baltimore
 Hunt, Washington & Smith, Nashville, Tenn.
 Hunterspoint Lbr. & Sup. Co., Hunterspoint, N. Y.
 Indiana Quartered Oak Co., Long Island City, N. Y.
 Kalt Lumber Co., 320 E. 64th St., New York
 Kells Mill & Lbr. Co., Provost St., Brooklyn, N. Y.
 Keyes, Chas F., 470 E. 10th St., New York
 Lane Co., Chas. E., Parkersburg, W. Va.
 McClave & Son, E. W., Harrison, N. J.
 Mansfield Hardwood Co. of La., Winnfield, La.
 Merkel, Wm., Irvington, N. J.
 Morton, Alex., Jersey City, N. J.
 N. Y. Forest Prod. Sales Co., Inc., 200 11th Av., New York
 North Vernon Lbr. Co., North Vernon, Ind.
 Peerless Lbr. Co., Lynchburg, Va.
 Perrin, Armstrong Co., Fort Wayne, Ind.
 Riggs-Terrell Lbr. Co., New Orleans, La.
 Stevens-Eaton Co., 1 Madison Av., New York
 Storm & Co., Geo. H., 545 E. 71st St., New York
 Tennessee Lbr. & Coal Co., Cincinnati
 Three States Lbr. Co., Memphis, Tenn.
 Turnbull Lbr. Co., J. W., Philadelphia
 Warner Lbr. & Equipment Co., Baltimore
 Watson Lbr. Co., Inc., 186 6th St., Brooklyn, N. Y.
 Wayne Lbr. Co., 110 W. 40th St., New York
 Whiting Lbr. Co., Philadelphia
 Williams Co., R. A. & J. J., Philadelphia
 Yates Lbr. Co., John B., Pennsboro, W. Va.
 (See also **LUMBER, Hardwood & Oak**)

OAKUM

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Chatfield & Woods Co., The, Cincinnati
 Davey & Sons, W. O., Jersey City, N. J.
 Flocker & Co., John, Pittsburgh
 Foard-Barstow Ship Chand Co., San Francisco
 Jackson & Sons Co., Thos., Reading, Pa.
 Pacific Net & Twine Co., Seattle
 Stratford Oakum Co., Geo., Jersey City, N. J., see p. 28
 Woolford Oakum Co., W. B., Baltimore

OAKUM, Plumbers**Ships
Spun**

Stratford Oakum Co., Geo., Jersey City, N. J., see p. 28
OARS

AnchorSaw Mills, 253 Broadway, N. Y.
 De Grauw, Aymer & Co., 34 South St., N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 New York Boat Oar Co., Inc., 69 West St., N. Y.
 Shaw & Tenney, Orona, Me.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Upson-Walton Co., Cleveland
 Weeks-Howe Emerson Co., San Francisco
 (See also **Ship Chandlers, Port Data Section**)

OHMMETERS

Biddle, James G., Philadelphia
 Central Scientific Co., Chicago
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Westinghouse Electric & Mfg Co., Pittsburgh
 Weston Electrical Instrument Co., Newark, N. J.

OIL BURNING EQUIPMENT, Complete

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Peabody Engineering Corp, 331 Madison Av., New York, see p. 65
 Worthington Pump & Machinery Corp, 115 Broadway, New York, see pp. 74-81
 (See also **Atomisers, Air Registers, Oil Heaters, Oil Meters Strainers, Pumps, etc.**)

OIL CANS (See Cans, Oil)**OIL CLOTH**

Columbus-Union Oil Cloth Co., Columbus, Ohio
 Standard Oil Cloth Co., 320 Broadway, New York

OIL COOLERS

Braun & Co., C. F., San Francisco
 Davidson Co., M. T., 154 Nassau St. New York
 Ford & Geirrine San Francisco
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93
 Kerr Machinery Corp, Detroit, Mich.
 Row & Davis, Engineers, Inc., 90 West St., New York, see p. 45
 Ross Heater & Mfg Co., Buffalo, N. Y.
 Schutte & Koerting Co., Philadelphia

OIL CUPS (See Cups, Grease & Oil)**OIL ENGINES (See Diesel Engines; Also Semi-Diesel Engines)****OIL FILTERS, (See Also Oil Purifiers)**

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

OIL GUNS (Guns, Grease & Oil)**OIL HEATERS**

Braun & Co., C. F., San Francisco
 Coen Co., 112 Market St., San Francisco
 Davidson Co., M. T., 154 Nassau St., New York
 Ford & Geirrine, San Francisco
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93
 Kerr Machinery Corp, Detroit, Mich.
 Ross Heater & Mfg Co., Buffalo, N. Y.
 Row & Davis, Engineers, Inc., 90 West St., New York, see p. 45
 Schutte & Koerting Co., Philadelphia
 Woolley & Co., E. L., Industrial Trust Bldg., Providence, R. I.

OIL METERS

American Steam Gauge & Valve Mfg Co., Boston
 Bowser Co., S. F., Fort Wayne, Ind.
 Worthington Pump & Machinery Corp, 115 Broadway, New York, see pp. 74-81

Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill, Philadelphia, see p. 124

OIL PUMPING SETS, Complete

Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

OIL PUMPS (See Pumps, Subhead)

OIL PURIFIERS

Bowser Co., S. F., Fort Wayne, Ind.

Nugent & Co., Wm. W., Chicago

De Laval Separator Co., The, 165 Broadway, New York, see p. 68

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

Westinghouse Electric & Mfg Co., Pittsburgh

OIL PURIFIERS, Centrifugal

De Laval Separator Co., The, 165 Broadway, New York, see p. 68

OIL RECLAIMING SYSTEMS

American Tool & Machine Co.,

Bowser Co., Inc., S. F., Fort Wayne, Ind.

De Laval Separator Co., The, 165 Broadway, New York, see p. 68

D'Olier Centrifugal Pump & Mach. Co., Philadelphia

Oil & Waste Saving Machine Co., Philadelphia

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

Wayne Oil Tank & Pump Co., Fort Wayne, Ind.

OIL SEPARATORS (See Separators, Oil)

OIL SLIPS (See Also Oilstones)

Bracher Co., Bellville, N. J.

Chicago Wheel & Mfg Co., 1101 W. Monroe St., Chicago

Hampden Corundum Wheel Co., Springfield, Mass.

Pike Mfg Co., 151 Chambers St., New York

Scranton Whetstone & Abrasive Wheel Co., Scranton, Pa.

OIL STORAGE SYSTEMS

Bowser & Co., Inc., S. F., Fort Wayne, Ind.

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

Wayne Oil Tank & Pump Co., Ft. Wayne, Ind.

OIL STRAINERS (See Strainers, Oil)

OIL TANKS (See Oil Storage)

OILERS, Telescopic

Nugent & Co., Inc., Wm. G., 143 W. Superior St., Chicago

OILS, Air Compressor

Cylinder

Cylinder, Superheat

Dynamo

Engine, Main

Engine Main, Forced Lubrication

Engine, Marine, Mineral Straight

Gears, Reduction

Ice Machine

Motor Cylinder, Heavy

Motor Cylinder, Medium

Solidified

Speed Gear

Tempering Bath

Turbine

Alexander & Co., H. T., 17 Battery Place, New York

American Oil Corp., Jackson, Mich.

American Oil & Supply Co., Newark, N. J.

Anderson & Gustofson, Trans. Bldg., Chicago

Atlantic Refining Co., Philadelphia

Baltimore Oil Co., Baltimore

Bayerson Oil Works, Erie, Pa.

Belden & Co., A. G., 29 Burling St., New York

Borne-Scrymmer Co., 80 South St., New York

Buck & Co., E. A., Palmer, Mass.

Chard & Howe, 250 Front St., New York

Clarendon Refining Co., Clarendon, Pa.

Clarke Co., Fred G., 1091 W. 11th St., Cleveland

Clarkson & Ford Co., 55 Water St., New York

Columbia Refining Co., 90 West St., New York

Cook's Sons, Adam, 708 Washington St., New York

Cornplanters Ref. Co., Warren, Pa.

Crane Co., L. M., Boston

Crew Levick Co., 109 N. Broad St., Philadelphia

Detroit Soluble Oil Co., 173 W. Larned St., Detroit, Mich.

Dick & Co., W. B., 42 Broadway, New York

Emery Mfg Co., Bradford, Pa.

Emlenton Refining Co., Emlenton, Pa.

Fiske Bros. Ref. Co., 24 State St., New York

Franklin Oil & Gas Co., Franklin, Pa.

Globe Refining Co., Cleveland

Gulf Refining Co., Pittsburgh

Haggerty Refining Co., 50 South St., New York

Harris Oil Co., A. W., Providence, R. I.

Haws, Inc., Geo., A., 395 Broadway, New York

Houghton & Co., E. F., 432 Canal St., New York

Hudson Oil Co., Inc., 109 Broad St., New York

Indian Refining Co., Inc., 244 Madison Av., New York

Island Petroleum Co., Baltimore

Isley-Doubleday & Co., 229 Front St., New York

Johnson Oil Refining Co., Chicago Heights, Ill.

Kellog & Co., E. H., 243 South St., New York

Mills Oil Co., C. E., Syracuse, N. Y.

Moore Oil Co., Mfg Dept, Cincinnati

N. Y. Lubricating Oil Co., 116 Broad St., New York

Ohio Grease Co., Loudonville, Ohio

Ohio Valley Ref. Co., St. Mary's, W. Va.

Oil Marketing Co., Inc., 44 Vesey St., New York

Pierce Oil Co., St. Louis, Mo.

Robinson & Son Co., Wm. C., Baltimore, Md.

Sinclair Refining Co., Chicago

Smith & Co., C. K., 113 Arch St., Philadelphia

Sonneborn Sons, L., 262 Pearl St., New York

Stevenson Bros. & Co., 110 Race St., Philadelphia

Sullivan Oil Co., Chicago

Sun Co., The, Philadelphia

Swan & Finch, 522 Fifth Av., New York

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

Union Oil Co. of Cal., San Francisco

Van Tilburg Oil Co., Minneapolis, Minn.

Wadhams Oil Co., Milwaukee, Wis.

Warley & Co., Thos. C., 227 S. Front St., Philadelphia

White & Bagley, Worcester, Mass.

White Star Ref. Co., Detroit, Mich.

World Oil Products Co., 305 Lafayette St., New York

OILS, Cleaning & Rust Prevention

American Oil & Supply Co., Newark, N. J.

Belden & Co., A. G., 29 Burling St., New York

Capstone Mfg Co., 132 Union St., Newark, N. J.

Damascus Mfg Co., Cleveland

Fiske Bros., Ref. Co., 24 State St., New York

Haven, E. Halstead, 5 Beekman St., New York

McKesson & Robbins, 91 Fulton St., New York

Many-Use Oil Co., 113 Chambers St., New York

Marshall Oil Co., Marshalltown, Iowa

Oil Products Co., Inc., 50 Union Sq., New York

Shoemaker & Busch, 513 Arch St., Philadelphia

Sun Co., The, Philadelphia

Swan & Finch, 522 Fifth Av., New York

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

Three-in-One Oil Co., 165 Broadway, New York

OILS, Core

Bird-Archer Co., 90 West St., New York

Damascus Mfg Co., Cleveland

Holland Core Oil Co., Chicago

Mills Oil Co., C. E., Syracuse, N. Y.

Phoenix Oil Co., Cleveland

Robinson & Son Co., Wm. C., Baltimore

Swan & Finch, 522 Fifth Av., New York

OILS, Cutting (See Also Cutting Compounds)

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

OILS, Fish

Atlas Refinery, Newark, N. J.

Baltimore Oil Co., Baltimore

Bent, James S., 115 First St., Boston

Clark Co., Fred G., 1091 W. 11th St., Cleveland

Cook Oil Co., N. B., 148 Front St., New York

Devillers Soap Co., Inc., 150 Nassau St., New York

STERLING-COOPER CO., NEW YORK

- Marden, Orth & Hastings Corp, 136 Liberty St., New York
 Rockhill & Viltor, 22 Cliff St., New York
 Smith & Co., C. K., 113 Arch St., Philadelphia
 Snead Co., E. R., Cleveland
 Stevenson Bros. & Co., 110 Race St., Philadelphia
 Swan & Finch, 522 Fifth Av., New York
- OILS, Fuel (See Also Bunkering, Oil, Port Data Section)**
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
- OILS, Kerosene**
 Atlantic Refining Co., Philadelphia
 Bayerson Oil Works, Erie, Pa.
 Central Refining Co., Lawrenceville, Ill.
 Clarendon Ref. Co., Clarendon, Pa.
 Consumers Refining Co., Chicago
 Crew Levick Co., Philadelphia
 Emery Mfg Co., Bradford, Pa.
 Franklin Oil & Gas Co., Bedford, Ohio
 Gulf Refining Co., Pittsburgh
 Island Petroleum Co., Baltimore
 Johnson Oil Ref. Co., Chicago Heights, Ill.
 Mutual Oil Co., Kansas City, Mo.
 Ohio Valley Ref. Co., St. Mary's, W. Va.
 Sinclair Refining Co., Chicago
 Sun Co., The, Philadelphia
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Tidewater Oil Co., 11 Broadway, New York
 Union Oil Co. of Cal., San Francisco
 Union Petroleum Co., 17 Battery Place, New York
- OILS, Lard, Mineral (See Also Oil, Air Compressor, etc.)**
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
- OILS, Lard, Pure**
 American Oil & Supply Co., Newark, N. J.
 Armour & Co., Union Stockyards, Chicago
 Atlas Refining, Newark, N. J.
 Belden & Co., A. G., 29 Burling St., New York
 Baltimore Oil Co., Baltimore
 Clarkson & Ford Co., 55 Water St., New York
 Cook Oil Co., N. B., 148 Front St., New York
 Crane Co., L. M., Boston
 Detroit Soluble Oil Co., Detroit, Mich.
 Globe Refining Co., Cleveland
 Hawkeye Oil Co., Waterloo, Iowa
 Haws, Inc., Geo. A., 395 Broadway, New York
 Hollingshead Co., R. M., Camden, N. J.
 Hudson Oil Co., Inc., 109 Broad St., New York
 Johnson Oil Ref. Co., Chicago Heights, Ill.
 McKesson & Robbins, 91 Fulton St., New York
 Marden, Orth & Hastings, Boston
 Masury Young Co., Boston
 Mills Oil Co., C. E., Syracuse, N. Y.
 Morris & Co., Union Stockyards, Chicago
 National Oil Products Co., 220 Broadway, New York
 Shoemaker & Busch, 515 Arch St., Philadelphia
 Smith & Co., C. K., 113 Arch St., Philadelphia
 Stevenson Bros. & Co., Philadelphia
 Swift & Co., Contract Dept., Union Stockyards, Chicago
 Wadhams Oil Ref. Co., Milwaukee, Wis.
 Wilson & Co., Chicago
 World Oil Products Co., Inc., New York
- OILS Linseed (See Paints)**
OILS, Slushing (See Slushing Compound)
OILS, Sperm, Mineral
 American Oil & Supply Co., Newark, N. J.
 Atlantic Refining Co., Philadelphia
 Belden & Co., A. G., 29 Burling St., New York
 Borne-Scrymser Co., 80 South St., New York
 Clarkson & Ford Co., 55 Water St., New York
 Columbia Refining Co., 90 West St., New York
 Cook Oil Co., N. B., 148 Front St., New York
 Crew Levick Co., 109 N. Broad St., Philadelphia
 Damascus Mfg Co., Cleveland
 Fiske Bros. Ref. Co., 24 State St., New York
 Haws, Inc., Geo. A., 395 Broadway, New York
 Magnus, Mabee & Reynard, 257 Pearl St., New York
 Malone Oil Co., Cleveland
 Marshall Oil Co., Marshalltown, Iowa
 N. Y. Lubricating Oil Co., 116 Broad St., New York
 Sun Co., The, Philadelphia
- Swan & Finch, 522 Fifth Av., New York
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
- OIL, Sperm, Pure**
 American Oil & Supply Co., Newark, N. J.
 Belden & Co., A. G., 29 Burling St., New York
 Cook Oil Co., N. B., 148 Front St., New York
 Dodd & Co., A. W., Gloucester, Mass.
 Haws, Inc., Geo. A., 395 Broadway, New York
 Magnus, Mabee & Reynard, 257 Pearl St., New York
 Marden, Orth & Hastings Corp, 136 Liberty St., New York
 Masury Young Co., Boston
 Nye, Wm. F., New Bedford, Mass.
 Wadhams Oil Co., Milwaukee, Wis.
 Shoemaker & Busch, 515 Arch St., Philadelphia
 Smith & Co., C. K., 113 Arch St., Philadelphia
 Stevenson Bros. & Co., 110 Race St., Philadelphia
 Swan & Finch, 522 Fifth Av., New York
 Wadhams Oil Co., Milwaukee, Wis.
- OILS, Transformers**
General Electric Co., Schenectady, N. Y., see pp. 36-41
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
(See also Oil, Air Compressor, etc.)
- OILS, Turpentine (See Paint)**
OILS, Wire Rope Dressing
Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
- OILSTONES, Mounted & Unmounted**
 Abrasive Co., 30 Church St., New York
 Chicago Wheel & Mfg Co., 1101 W. Monroe St., Chicago
 Dixon, Inc., Wm., 39 John St., New York
 Flint & Chester, 2 South St., New York
 General Machy & Supply Co., 302 Broadway, New York
 Hampden Corundum Wheel Co., Springfield, Mass.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Pike Mfg Co., 151 Chambers St., New York
 Scranton Whetstone & Abrasive Wheel Co., Scranton, Pa.
- OVENS, Bakery (See Bake Ovens)**
General Electric Co., Schenectady, N. Y., see pp. 36-41
- OVENS, Core**
 Detroit Heating & Lighting Co., Detroit, Mich.
 Foundry Equipment Co., Cleveland
 Koven & Bro., L. O., 154 Ogden Av., Jersey City, N. J.
 Oven Equipment & Mfg Co., The, New Haven, Conn.
 Steiner & Co., E. F., Newark, N. J.
(See also Foundry Equipment)
- OVENS, Sherardizing**
General Electric Co., Schenectady, N. Y., see p. 36-41
- OXY-ACETYLENE, Cutting & Welding**
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
see p. 100
 Southland Steamship Co., Savannah, Ga., *see p. 101*
(See also Cutting & Welding Supplies, Gas Process)
- OXYGEN (See Hydrogen)**
- OZITE**
 General Devices Fittings Co., 817 W. Wash. Blvd., Chicago
 Mitchell-Rand Mfg Co., 18 Vesey St., New York
 Philadelphia Electric Co., The, Philadelphia
 Royal-Eastern Elec. Sup. Co., 114 W. 27th St., New York
 Standard Underground Cable Co., Pittsburgh
- OZONATORS**
General Electric Co., Schenectady, N. Y., see pp. 36-41
 Ozone Pure Agrifier Co., 1401 Jackson Blvd., Chicago

P

PACKING, Ammonia

- American Huhn Metallic Pkg Co., 233 Bway, New York
 Brunswick Refrigerating Co., New Brunswick, N. J.,
see p. 95
 Clark Flexible Metallic Pkg Co., Portland, Me.
 Crane Packing Co., Chicago
 Ford & Geirrine, San Francisco
 France Packing Co., Tacony, Philadelphia, *see p. 56*

Garlock Packing Co., Palmyra, N. Y.
 Johns-Manville Co., H. W., 41st & Madison Av., New York

Johnson & Co., The Henry, Jersey City, N. J.
 Pacific Coast Rubber & Supply Co., San Francisco
 Thorne-Pioneer Co., Inc., 3 Atlantic Av., Brooklyn, see p. 129

York Manufacturing Co., York, Pa., see p. 98
 (See also *Packing, Spiral Ice Machine*)
 (See also *Packing, Leather, for Ice Machines*)

PACKING, Arc Chamber

Adams-Bagnall Electric Co., Cleveland
 American Radio Research Co., 21 Park Row, New York
 Fullerton Electric Co., 15 W. 20th St., New York
 International Radio Telegraph Co., 326 Bway., New York
 Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Ostrander & Co., W. R., 371 Broadway, New York

PACKING, Asbestos

Asbestos, Fibre

Asbestos, Rope

Allen Packing Co., Collingswood, N. J.
 American Steam Packing Co., 191 High St., Boston
 Anchor Packing Co., 74 Murray St., New York
 Bailey-Lebby Co., The, Charleston, S. C.
 Belmont Packing & Rubber Co., Philadelphia
 Braun Bros. Co., Providence, R. I.
 Carey Manufacturing Co., Phillip, Cincinnati
 Chesterton Co., A. W., 64 India St., Boston
 Cincinnati Rubber Mfg Co., Franklin, Norwood, Cincinnati
 Crandall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dickson & Co., Stewart, 122 Broad St., New York
 Dominion Asbestos & Rub Wks, 154 Nassau St., New York
 Ehret Magnesia Mfg Co., Valley Forge, Pa.
 Fitzgerald Manufacturing Co., Torrington, Conn.
 Garlock Packing Co., Palmyra, N. Y.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodyear Tire & Rubber Co., Akron, Ohio
 Grapho Metal Packing Co., Indianapolis, Ind.
 Greene, Tweed & Co., 109 Duane St., New York
 Johns-Manville Co., H. W., Madison Av., & 41st St., New York
 Johnson Co., The, Henry, Ft. Gates Av., Jersey City, N. J.
 Johns-Pratt Co., Hartford, Conn.
 Keasbey & Co., R. A., 445 West St., New York
 Keasbey & Mattison, Ambler, Pa.
 Knowlton Rubber Co., Geo. W., Boston
 National Asbestos Mfg Co., 163 Henderson St., Jersey City, N. J.
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 Niagara Falls Gasket & Packing Co., 50 Church St., New York
 Plant, Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., Philadelphia
 Thermoid Rubber Co., Trenton, N. J.
 United Globe Rubber Co., 120 Broadway, New York
 U. S. Indestructible Gasket Co., 50 Church St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57
 Voorhees Rubber Mfg Co., Jersey City, N. J.
 Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wearwell Gasket Co., Camden, N. J.
 Wilcox Manufacturing Co., E. A., Chicago
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

PACKING, Condenser Tube

Allen Packing Co., Collingswood, N. J.
 American Steam Packing Co., Boston
 Belmont Pkg. & Rubber Co., Philadelphia
 Chesterton Co., A. W., Boston
 Danubil Co., 253 Broadway, New York
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Klenck, F. J., San Francisco
 Knowlton Rubber Co., Geo. W., Boston
 Neptune Packing & Rubber Co., 253 Bway, New York
 N. J. Asbestos Co., 1 Water St., New York
 N. Y. Rubber Co., 84 Reade St., New York

Plant Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., Philadelphia
 Samson Cordage Co., Boston
 Silver Lake Co., Newtonville, Mass.
 Wing & Co., J. T., Detroit, Mich.

PACKING, Flax, Square

Allen Packing Co., Collingswood, N. J.
 American Steam Pkg Co., Boston
 Bailey-Lebby Co., The, Charleston, S. C.
 Belmont Pkg & Rubber Co., Philadelphia
 Braun Bros., Providence, R. I.
 Chesterton Co., A. W., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Clinton Mfg Co., 83 Grand Av., Brooklyn, N. Y.
 Crandall Packing Co., Palmyra, N. Y.
 Garlock Packing Co., Palmyra, N. Y.
 General Asbestos & Rubber Co., Charleston, S. C.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Grapho Metal Pkg Co., Indianapolis, Ind.
 Imperial Packing Corp., 191 Greenwich St., New York
 Johnson Co., Henry, Jersey City, N. J.
 Knowlton Rubber Co., Geo. W., Boston
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Plant Rubber & Asbestos Wks, San Francisco
 Quaker City Rubber Co., Philadelphia
 Wing & Co., J. T., Detroit, Mich.

PACKING, Hydraulic, Leather, Oak Tanned

American Oak Leather Co., Cincinnati
 Bay State Belting Co., 605 Atlantic Av., Boston
 Coet Brown, 204 George St., New Haven, Conn.
 Central Belting Co., 151 Lafayette St., New York
 Couse & Bolton, 329 Lafayette St., New York
 England Walton Co., 256 N. 3d St., Philadelphia
 Fleming & Sons, D. B., 10 Jacob St., New York
 Frank & Sons, B., 40 Spruce St., New York
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee
 Graton & Knight Mfg Co., Worcester, Mass.
 Harrison Co., Benjamin V., 42 Spruce St., New York
 Judd & Leland Mfg Co., Clifton Springs, N. Y.
 Ladew Co., Inc., 428 Broadway, New York
 McLean Manufacturing Corp., 30 Sullivan St., New York
 Mabbs Hydraulic Pkg Co., 431 S. Dearborn St., Chicago
 Maloney Belting Co., 130 N. Franklin St., Chicago
 Missouri Belting Co., 116 Nassau St., New York
 National Leather Belting Co., 342 E. 38th St., New York
 Neptune Packing & Rubber Co., 253 Broadway, New York
 New York Leather Belt Co., 465 Kent Av., Bklyn., N. Y.
 Page Belting Co., Concord, N. H.
 Palmer & Co., N., Bridgeport, Conn.
 Philadelphia Belting Co., 17 Battery Place, New York
 Richmond Leather Mfg Co., 2201 E. Carey St., Richmond
 Schieren & Co., Chas. A., 30 Ferry St., New York
 Strong Machinery & Supply Co., 21 Walker St., New York
 Union Belt Co., Fall River, Mass.

PACKING, Leather (for Ice Machines)

Braun Bros. Co., Providence, R. I.
 Crandall Packing Co., Palmyra, N. Y.
 Fleming & Sons, D. B., 10 Jacob St., New York
 Gebhardt & Co., A. L., 306 E. Water St., Milwaukee, Wis.
 Graton & Knight, Worcester, Mass.
 Harrison, Benjamin V., 42 Spruce St., New York
 Houghton, E. F., 432 Canal St., New York
 Judd & Leland Manufacturing Co., Clifton Springs, N. Y.
 Page Belting Co., 258 Broadway, New York
 Schieren Co., Chas. A., 30 Ferry St., New York
 Strong Machinery & Supply Co., 21 Walker St., New York

PACKING, Metallic

American Huhn Metallic Pack. Co., 233 Bway, New York
 Advance Pack. & Supply Co., 11 N. Franklin St., Chicago
 Casco-Bar-Metallic Packing Co., Hoboken, N. J.
 Crandall Packing Co., Palmyra, N. Y.
 Crane Packing Co., Chicago
 Eureka Packing Co., 78 Murray St., New York
 Ford & Geirrine, San Francisco
 France Packing Co., Tacony, Philadelphia, see p. 56
 Goetze Gasket & Packing Co., New Brunswick, N. J.
 Holmes Metallic Packing Co., Wilkes-Barre, Pa.
 Katzenstein & Co., L., 358 West St., New York

STERLING-COOPER CO., NEW YORK

Law Metallic Pack. Co., Inc., 82 Webster St., Newark, N. J.
 Martell Packings Co., The, Elyria, Ohio
 Metalpac Manufacturing Co., Maywood, Ill.
 Metric Packing Co., Inc., Buffalo, N. Y.
 Steel Mill Packing Co., Detroit, Mich.
 Thorne-Pioneer Co., Inc., 3 Atlantic Av., Brooklyn, see p. 129

Tucker & Co., E. W., 347 Fremont St., San Francisco
 U. S. Indestructible Gasket Co., 50 Church St., New York
 U. S. Metallic Packing Co., Philadelphia
 Wilcox Manufacturing Co., E. A., 6330 Stony Island Av., Chicago

PACKING, Rubber (See Gasket Rubber, Sheet & Strip)
PACKING, Sheet, Asbestos, Metallic

Allen Packing Co., Collingswood, N. J.
 American Steam Packing Co., 191 High St., Boston
 Anchor Packing Co., 72 Murray St., New York
 Asbestos Textile Co., 233 Broadway, New York
 Belmont Packing & Rubber Co., 30 Church St., New York
 Byrnes Belting Co., St. Louis, Mo.
 Chesterton Co., A. W., 64 India St., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Crandall Packing Co., Palmyra, N. Y.
 Dickson & Co., Stewart, 122 Broad St., New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York
 Ehret Magnesia Mfg Co., 101 Park Av., New York
 Garlock Packing Co., 114 Liberty St., New York
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York

Keasbey & Co., R. A., 445 West St., New York
 Keasbey & Mattison, Co., 217 Broadway, New York
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Martell Packings Co., The, Elyria, Ohio
 Neptune Packing & Rubber Co., 253 Broadway, New York
 New Jersey Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Niagara Falls Gasket & Packing Co., 50 Church St., New York

Norristown Magnesia & Asbestos Co., Norristown, Pa.
 Plant Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., 11th & Race Sts., Philadelphia
 U. S. Indestructible Gasket Co., 50 Church St., New York
 Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wearwell Gasket & Packing Co., Camden, N. J.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

PACKING, Sheet, Gasoline & Oil Joint

Allen Packing Co., Collingswood, N. J.
 American Steam Packing Co., 191 High St., Boston
 Anchor Packing Co., 74 Murray St., New York
 Belmont Packing & Rubber Co., Philadelphia
 Bronner Co., E. H., 19 Park Place, New York
 Chesterton Co., A. W., 64 India St., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Crandall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rubber Works, 154 Nassau St., New York
 Electric Hose & Rubber Co., 165 Chambers St., New York
 Empire Rubber & Tire Co., Trenton, N. J.
 Endura Manufacturing Co., Philadelphia
 Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass., see p. 53

Fitzgerald Manufacturing Co., Torrington, Conn.
 Garlock Packing Co., 114 Liberty St., New York
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Goodrich Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., 123 W. 64th St., New York
 Jenkins Bros., 80 White St., New York
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York

Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 New Jersey Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

New York Rubber Co., 84 Reade St., New York
 Niagara Falls Gasket & Packing Co., 50 Church St., New York

Pacific Coast Rubber & Supply Co., San Francisco
 Penn Rubber Co., Jeanette, Pa.
 Plant Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., Philadelphia
 U. S. Indestructible Gasket Co., 50 Church St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57

Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

PACKING, SHEET, High Pressure, Gas Engine

Belmont Packing & Rubber Co., Philadelphia
 Chesterton Co., A. W., 64 India St., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Danubil Co., The, 253 Broadway, New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York

Empire Rubber & Tire Co., Trenton, N. J.
 Fitzgerald Manufacturing Co., Torrington, Conn.
 Garlock Packing Co., Palmyra, N. Y.
 General Asbestos & Rubber Co., Charleston, S. C.
 George & Co., G., 194 Front St., New York
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Goodyear Rubber & Tire Co., 123 W. 64th St., New York
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York

Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Neptune Packing & Rubber Co., 253 Broadway, New York
 N. J. Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Niagara Falls Gasket & Packing Co., 50 Church St., New York

Pennsylvania Rubber Co., Jeanette, Pa.
 Quaker City Rubber Co., Philadelphia
 Strong Machinery & Supply Co., 21 Walker St., New York
 U. S. Indestructible Gasket Co., 50 Church St., New York
 Vulcan Asbestos Mfg Co., 95 Broad St., New York
 Wearwell Gasket & Packing Co., Camden, N. J.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

PACKING, Sheet, Paper, Oiled

Anchor Packing Co., 74 Murray St., New York
 Belmont Packing & Rubber Co., Philadelphia
 Chesterton Co., A. W., 64 India St., Boston
 Crandall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rubber Works, 154 Nassau St., New York

Endura Manufacturing Co., 45 Lafayette St., New York
 Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass., see p. 53

Fitzgerald Manufacturing Co., Torrington, Conn.
 Johns-Manville Co., H. W., Madison Av., 41st St., New York

Linde Paper Co., J. E., 84 Beckman St., New York
 Niagara Falls Gasket & Packing Co., 50 Church St., New York

Pennsylvania Rubber Co., Jeanette, Pa.
 Philadelphia Belting Co., Philadelphia
 Strong Machinery & Supply Co., 21 Walker St., New York
 U. S. Indestructible Gasket Co., 50 Church St., New York
 Voorhees Rubber Manufacturing Co., Jersey City, N. J.
 Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.

PACKING, Sheet, Rubber, Cloth & Wire Insertion

Allen Packing Co., Collingswood, N. J.
 American Steam Pkg Co., Boston
 Anchor Packing Co., 74 Murray St., New York
 Bailey-Lebby Co., The, Charleston, S. C.
 Belmont Pkg & Rubber Co., Philadelphia
 Boston Belting Co., Boston
 Boston Woven Hose & Rubber Co. (Cloth), Boston
 Bronner Co., E. H., 19 Park Place, New York
 Chesterton Co., A. W., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Crandall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rubber Works, 154 Nassau St., New York

Durst Mfg Co., 105 Chambers St., New York

Electric Hose & Rubber Co. (Cloth), 165 Chambers St., New York
 Empire Rubber & Tire Co., Trenton, N. J.
 Fitzgerald Mfg Co. (Wire), Torrington, Conn.
 Garlock Packing Co. (Wire), Palmyra, N. Y.
 Goodrich Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Works, Akron, Ohio
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Gutta Percha & Rub Mfg Co., 126 Duane St., New York
 Hewitt Rubber Co. (Cloth), Buffalo, N. Y.
 Jenkins Bros. (Wire), 80 White St., New York
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York

Knowlton Rubber Co., G. W., Boston
 Neptune Pkg. & Rubber Co., 253 Broadway, New York
 N. J. Asbestos Co., 1 Water St., New York
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 Niagara Falls Gasket & Pkg. Co. (Wire), 50 Church St., New York

Penn. Rubber Co., Jeanette, Pa.
 Philadelphia Belting Co., Philadelphia
 Plant Rubber & Asbestos Co., San Francisco
 Quaker City Rubber Co., Philadelphia
 Republic Rubber Co., The, Youngstown, Ohio
 Strong Machy & Supply Co., 21 Walker St., New York
 United Globe Rubber Co., 120 Broadway, New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57

Voorhees Rubber Mfg Co., Jersey City, N. J.
 Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wing & Co., J. T., Detroit, Mich.

PACKING, Spiral, Ice Machine & Steam

Allen Packing Co., Collingswood, N. J.
 Anchor Packing Co., 74 Murray St., New York
 Belmont Pkg. & Rubber Co., Philadelphia
 Chesterton Co., A. W., Boston
 Cincinnati Rubber Mfg Co., Cincinnati
 Crandaall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York

Garlock Packing Co., Palmyra, N. Y.
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Goodrich Rubber Co., Akron, Ohio
 Grapho Metal Pkg Co. (Ice), Indianapolis, Ind.
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York

Johnson Co., Henry, Jersey City, N. J.
 Knowlton Rubber Co., Geo. W., Boston
 Neptune Pkg. & Rubber Co., 253 Broadway, New York
 New Jersey Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

New York Rubber Co., 84 Reade St., New York
 Philadelphia Belting Co., Philadelphia
 Quaker City Rubber Co., Philadelphia
 Republic Rubber Co., The, (Ice), Youngstown, Ohio
 Strong Machy & Supply Co., 21 Walker St., New York
 United States Rubber Co., 1790 Broadway, New York, see, p. 57

PACKING, Spiral Steam (See Also Packing Spiral, Ice Machine)

American Steam Packing Co., Boston
 Asbestos Textile Co., 233 Broadway, New York
 Bailey-Lebby Co., Charleston, S. C.
 Boston Belting Co., Boston
 Goodyear Tire & Rubber Co., Akron, Ohio
 Greene, Tweed & Co., 109 Duane St., New York
 Vulcan Asbestos & Mfg Co., 95 Broad St., New York
 Wearwell Gasket & Pkg Co., Camden, N. J.

PACKING, Tucks, Round

Allen Packing Co., Collingswood, N. J.
 American Steam Pkg Co., Boston
 Anchor Packing Co., 74 Murray St., New York
 Belmont Pkg. & Rubber Co., Philadelphia
 Boston Belting Co., Boston
 Bronner & Co., E. H., 19 Park Place, New York
 Chesterton Co., A. W., Boston

Cincinnati Rubber Mfg Co., Cincinnati
 Crandall Packing Co., Palmyra, N. Y.
 Danubil Co., 253 Broadway, New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York

Empire Rubber & Tire Co., Trenton, N. J.
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Goodrich Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., Akron, Ohio
 Grapho Metal Pkg Co., Indianapolis, Ind.
 Gutta Percha & Rubber Mfg Co., 126 Duane St., New York
 Knowlton Rubber Co., Geo. W., Boston
 Neptune Pkg. & Rubber Co., 253 Broadway, New York
 N. J. Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

New York Rubber Co., 84 Reade St., New York
 Quaker City Rubber Co., Philadelphia
 Samson Cordage Co., Boston
 Strong Machy & Supply Co., 21 Walker St., New York
 Thermoid Rubber Co., Trenton, N. J.
 United Globe Rubber Co., 120 Broadway, New York
 Voorhees Rubber Mfg Co., Jersey City, N. J.
 Wing & Co., J. T., Detroit, Mich.

PACKING, Wick, Asbestos

American Steam Pkg. Co., Boston
 Asbestos Textile Co., 233 Broadway, New York
 Belmont Pkg. & Rubber Co., Philadelphia
 Carey Mfg Co., Phillip, Cincinnati
 Chesterton Co., A. W., Boston
 Clinton Mfg Co., 83 Grand Av., Brooklyn, N. Y.
 Crandall Packing Co., Palmyra, N. Y.
 Crane Co., 249 Willoughby St., Brooklyn, N. Y.
 Danubil Co., 253 Broadway, New York
 Dickson & Co., Stewart, 122 Broad St., New York
 Dominion Asbestos & Rubber Wks, 154 Nassau St., New York

Ehret Magnesite Mfg Co., Valley Forge, Pa.
 Franklin Mfg Co., Franklin, Pa.
 General Asbestos & Rubber Co., Charleston, S. C.
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York

Keasbey & Co., Robt. A., 445 West St., New York
 Keasbey & Mattison, Ambler, Pa.
 New Jersey Asbestos Co., 1 Water St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Norristown Mag. & Asbestos Co., Norristown, Pa.
 Plant Rubber & Asbestos Works, San Francisco
 Quaker City Rubber Co., Philadelphia
 Strong Machy & Supply Co., 21 Walker St., New York
 United States Rubber Co., 1790 Broadway, New York, see p. 57

PACKING, Wick, Cotton, Flat

Allen Packing Co., Collingswood, N. J.
 Danubil Co., 253 Broadway, New York
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Grapho Metal Packing Co., Indianapolis, Ind.
 Knowlton Rubber Co., Geo. W., Boston
 Neptune Pkg. & Rubber Co., 253 Broadway, New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Philadelphia Belting Co., Philadelphia
 Strong Machy & Supply Co., 21 Walker St., New York
 Wing & Co., J. T., Detroit, Mich.

PACKING, Wick, Cotton, Round

Allen Packing Co., Collingswood, N. J.
 Belmont Pkg. & Rubber Co., Philadelphia
 Bronner & Co., E. H., 19 Park Place, New York
 Chesterton Co., A. W., Boston
 Durst Mfg Co., 126 Duane St., New York
 Goodall Rubber So., Inc., Philadelphia, see p. 54
 Grapho Metal Pkg Co., Indianapolis, Ind.
 Knowlton Rubber Co., Geo. W., Boston
 Manasset Mfg Co., Fall River, Mass.
 Neptune Pkg. & Rubber Co., 253 Broadway, New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55

Philadelphia Belting Co., Philadelphia
 Samson Cordage Co., Boston
 Strong Machy & Supply Co., 21 Walker St., New York
 Wing & Co., J. T., Detroit, Mich.

PACKING TOOLS (See Also Hooks, Packing)

Pilley Packing & Flue Brush Co., 606 So. 3d St., St. Louis, Mo.

PAINT, Acid Proof Anti-Corrosive Anti-Fouling

Acme White Lead & Color Works, Detroit, Mich.
 Alston-Lucas Paint Co., Chicago
 Amalgamated Paint Co., Pier 11, N. R., New York
 American Paint Works, 424 Josephine St., New Orleans
 Anti-Teredo Paint Co., San Francisco
 Arco Co., The, Cleveland
 Arlington Mfg Co., Canton, Ohio
 Aspromet Co., Pittsburgh
 Atlantic Drier & Varnish Co., Detroit, Mich.
 Baer Bros, 438 W. 37th St., New York
 Baltimore Copper Pt. Co., Baltimore
 Bass Hueter Paint Co., San Francisco
 Billings Chapin Co., Cleveland
 Bituco Mfg & Chem. Co., Philadelphia
 Bituminous Products Co., San Francisco
 Black Diamond Paint & Varnish Co.,
 Bradley & Vrooman Co., Chicago
 Briggs Bituminous Comp. Co., Inc., 17 Battery Place,
 New York
 Briggs & Co., Inc., John, Boston
 Brinistool Co., Mateo & Palmetto Sts., Los Angeles
 Cail Bitmo Co., Wm., 18 Broadway, New York
 California Paint Co., San Francisco
 Campbell Glass & Paint Co., St. Louis, Mo.
 Chase, Roberts & Co., Long Island City, N. Y.
 Chessman-Elliott Co., Inc., 23 Flatbush Av., Bklyn., N. Y.
 Childs & Co., Inc., Chas. M., 41 Summit St., Bklyn., N. Y.
 Chilton Paint Co., College Point, N. Y.
 Curry's Sons Co., Wm., Key West, Fla.
 Debevoise Co., 968 Grand St., Brooklyn, N. Y.
 Detroit Graphite Co., 120 Broadway, New York
 Detroit White Lead Works, Detroit, Mich.
 DuPont de Nemours Co., I. E., Wilmington, Del.
 Enterprise Paint Mfg Co., Chicago
 Federal Comp. & Paint Co., Inc., 17 Battery Pl., New York
 Foy Paint Co., Cincinnati
 French Co., Sam'l H., Philadelphia
 Glidden Co., Cleveland
 Gosheen Mfg Co., Warren, Ohio
 Hoosier Paint Works, Fort Wayne, Ind.
 Howell & Co., Chas. H., Philadelphia
 International Comp. Co., 18 Broadway, New York
 Jamestown Paint & Varnish Co., Jamestown, Pa.
 Kay & Ess Co., Dayton, Ohio
 Kohler-McLister Paint Co., Denver, Col.
 Lewis & Bros., John T., Philadelphia
 Lucas & Co., Inc., John, 521 Wash. St., New York
Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Means & Thatcher, Inc., Quincy, Mass.
 Murphy Varnish Co., Newark, N. J.
 New Process Chem. Co., 39 Cortlandt St., New York
 O'Brien Varnish Co., South Bend, Ind.
 Otley Paint Mfg Co., Chicago
 Paraffine Cos., Inc., San Francisco
 Patton Paint Co., Newark, N. J.
 Peasless-Gaulbert Co., Louisville, Ky.
 Phelan-Faust Paint Mfg Co., St. Louis, Mo.
 Protectus Paint Co., N. A. Bldg., Philadelphia
 Red Hand Comp. Co., Inc., 1 Broadway, New York
 Ridgeway-Quest Co., Chicago
 Robertson Paint & Varnish Co., Cleveland
 Roman Paint Co., Inc., San Francisco
 Sargent Paint Co., Indianapolis, Ind.
 Sterling Varnish Co., Pittsburgh
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 U. S. Gutta Percha Paint Co., Providence, R. I.
 Utley Paint Co., New Orleans, La.
 Vortex Mfg Co., Cleveland
 Wadsworth, Howland & Co., Inc., Boston

Wailles-Dove-Hermiston Corp, 17 Battery Pl., New York
 Wetherill & Co., Inc., Geo. D., Philadelphia
 Williams Submarine Comp. Co., New York
 Woolsey Paint & Color Co., C. A., Jersey City, N. J.

PAINT, Aluminum, Powdered, Dry

Aluminum Co. of America, 120 Broadway, New York
 American Paint Wks, 424 Josephine St., New Orleans, La.
 Ault & Wiborg Co. of N. Y., 57 Greene St., New York
 Bass Hueter Paint Co., San Francisco
 Brinistool Co., Mateo & Palmetto Sts., Los Angeles
 Butters Aluminum Bronze Wks, 120 Broadway, New York
 California Paint Co., Oakland, Cal.
 Carpenter Morton Co., Boston
 Chilton Paint Co., College Point, L. I., N. Y.
 Curry's Sons Co., Wm., Key West, Fla.
 Drakenfield & Co., B. F., 50 Murray St., New York
 Lucas & Co., John, 521 Washington St., New York
 McPhee & McGinnity Co., Denver, Col.
 Malone Bronze Powder Works, Malone, N. Y.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, Baltimore
 Oxidite Mfg Co., Arlington, Mass.
 Peaslee-Gaulbert Co., Louisville, Ky.
 Pittsburgh Plate Glass Co., Pittsburgh
 Pockels Drug Glass & Paint Co., St. Louis, Mo.
 Roman Paint Co., 55 New Montgomery St., San Francisco
 Seattle Paint Co., Seattle, Wash.
 Shoemaker & Busch, Philadelphia
 Thompson Wood Finishing Co., Philadelphia
 Toch Bros., 320 Fifth Av., New York
 Utley Paint Co., New Orleans, La.
 Vane-Calvert Paint Co., St. Louis, Mo.
 Wheeler Co., A., Boston
 Yates & Co., 762 Folsom St., San Francisco

PAINT, Aluminum, in Oil (See Paint, Acid and Asbestine in Oil)

PAINT, Asbestine, Dry (See Aluminum, Powdered, Dry)

PAINT, Asbestine, in Oil (See Also Acid Proof)

California Paint Co., Oakland, Cal.
 Chicago Varnish Co., Chicago
 Chilton Paint Co., College Point, L. I., N. Y.
 Fasdura Co., Philadelphia
 Larkin Co., Buffalo, N. Y.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, Baltimore
 N. J. Paint Works, Wayne & Fremont, Jersey City, N. J.
 Oxidite Mfg Co., Arlington, Mass.
 St. Louis Surfacers & Paint Co., St. Louis, Mo.
 Toch Bros., 320 Fifth Av., New York
 Watson Paint & Glass Co., McKeesport, Pa.
 Wheeler Co., A., Boston

PAINT, Asphaltum, Black Varnish

Acme White Lead & Color Works, Detroit, Mich.
 Adams & Elting Co., 724 Wash. Blvd., Chicago
 Aetna Varnish Co., Inc., Vanderbilt Av., Brooklyn, N. Y.
 Amalgamated Paint Co., Pier 11, N. R., New York
 American Lacquer Co., Bridgeport, Conn.
 American Paint Co., 424 Josephine St., New Orleans, La.
 Anti-Teredo Paint Co., San Francisco
 Atlantic Drier & Varnish Co., Philadelphia
 Barber Asphalt Paving Co., Philadelphia
 Barrett Varnish Co., Chicago
 Bass Hueter Paint Co., San Francisco
 Beaver Varnish Co., Buffalo, N. Y.
 Berry Bros., Detroit, Mich.
 Billings-Chapin Co., Cleveland
 Blackburn Varnish Co., Cincinnati
 Boston Varnish Co., Everett, Mass.
 Bradley & Vrooman Co., Chicago
 Bridgeport Bronze Marine Paint Co., Bridgeport, Conn.
 Briggs Bituminous Comp. Co., Inc., 17 Battery Pl., New York
 Brinistool Co., Mateo & Palmetto, Sts., Los Angeles
 Brooklyn Varnish Mfg Co., 35 Nostrand Av., Bklyn, N. Y.
 Brown Paint Co., Chas. H., 262 Fulton St., Bklyn, N. Y.
 Cail Bitmo Co., Wm., 18 Broadway, New York
 California Paint Co., San Francisco
 Calman & Co., Emil, 100 William St., New York
 Carpenter Morton Co., Boston

Certain-teed Products Corp, St. Louis, Mo.
 Chessman & Elliott Paint Mfg Co., St. Louis, Mo.
 Chicago Varnish Co., Chicago
 Childs & Co., Inc., Chas. M., 41 Summit St., Bklyn., N. Y.
 Clement "Coverall" Co., Camden, N. J.
 Cleveland Varnish Co., Cleveland
 Consolidated Oil Co., Cleveland
 Continental Products Co., Cleveland
 Cook Paint & Varnish Co., Kansas City, Mo.
 Coyne Bros., Varnish Co., Philadelphia
 Crockett Co., David B., Bridgeport, Conn.
 Curry's Sons Co., Wm., Key West, Fla.
 Day & Co., Jas. B., Chicago
 Detroit White Lead Works, Detroit, Mich.
 Devoe & Reynolds Co., Inc., 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 Fasdura Co., Philadelphia
 Federal Comp. & Paint Co., 17 Battery Place, New York
 Felton, Sibley & Co., Inc., Philadelphia
 Flood & Conklin, 132 Chestnut St., Newark, N. J.
 French Co., Sam'l E., Philadelphia
General Electric Co., Schenectady, N. Y., see p. 36-41
 Glidden Co., Cleveland
 Hilo Varnish Corp, Marcy Av., Brooklyn, N. Y.
 Horn Co., A. C., Long Island City, New York
 Hotopp Varnish Co., Hoboken, N. J.
 Indianapolis Varnish Co., Indianapolis, Ind.
 International Composition Co., 18 Broadway, New York
 Jamestown Paint & Varnish Co., Jamestown, Pa.
 Kay & Ess Co., Dayton, Ohio
 Keystone Varnish Co., 71 Otsego St., Brooklyn, N. Y.
 Larkin Co., Buffalo, N. Y.
 Lawrence & Co., W. W., Pittsburgh
 Louisville Varnish Co., Louisville, Ky.
 Lowe Bros. Co., Dayton, Ohio
 Lucas & Co., Inc., John, 521 Wash. St., New York
 McDougall Paint Co., Inc., Buffalo, N. Y.
 Marden, Orth & Hastings Corp, 136 Liberty St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Means & Thatcher, Inc., Quincy, Mass.
 Miller & Graham, Baltimore
 Moore & Co., Benj., 231 Front St., Brooklyn, N. Y.
 National Varnish Co., Long Island City, N. Y.
 New Process Chemical Co., 39 Cortlandt St., New York
 North Star Varnish Co., St. Paul, Minn.
 O'Brien Varnish Co., South Bend, Ind.
 Paraffine Companies, Inc., San Francisco
 Parrott Varnish Co., Bridgeport, Conn.
 Patton Paint Co., Newark, N. J.
 Peaslee-Gaulbert Co., Louisville, Ky.
 Phoenix Paint & Varnish Co., Philadelphia
 Pittsburgh Plate Glass Co., Pittsburgh
 Pockles Drug Glass & Paint Co., St. Louis, Mo.
 Pratt & Lambert, Inc., Buffalo, N. Y.
 Protectus Paint Co., Philadelphia
 Queen City Varnish Co., Cincinnati
 Republic Varnish Co., Newark, N. J.
 Robbins Varnish Co., A., St. Louis, Mo.
 Roberts & Co., Chas., Long Island City, N. Y.
 Robertson Chemical Co., Cleveland
 Roman Paint Co., 55 Montgomery St., San Francisco
 Sherwin-Williams Co., The, Cleveland
 St. Louis Surface & Paint Co., St. Louis, Mo.
 Standard Paint Co., 233 Broadway, New York
 Standard Varnish Works, 90 West St., New York
 Sterling Varnish Co., Pittsburgh
 Sun Varnish Co., Louisville, Ky.
 Thompson Wood Finishing Co., Philadelphia
 Toch Bros., 320 Fifth Av., New York
 Tower Varnish & Dryer Co., Dayton, Ohio
 Twin City Varnish Co., St. Paul, Minn.
 Utley Paint Co., New Orleans
 Van Camp Varnish Co., Cleveland
 Vortex Mfg Co., Cleveland
 Wadsworth, Howland & Co., Inc., Boston
 Warren Bros. Co., 50 Church St., New York
 Warren Chemical & Mfg Div., 17 Battery Pl., New York
 Watrous Varnish Co., Philadelphia
 Watson Paint & Glass Co., McKeesport, Pa.
 West Co., H. T., Boston
 Wheeler Co. A., Boston
 Yates & Co., San Francisco

PAINT, Bituminous Compositions

Amalgamated Paint Co., Pier 11, North River, New York
 American Bitumistic Enamel Co., 17 Battery Pl., New York
 Anti-Teredo Paint Co., San Francisco
 Baltimore Copper Paint Co., Baltimore
 Bituminous Products Co., 1 Drumm St., San Francisco
 Briggs Bituminous Comp. Co., 17 Battery Place, New York
 Cail Bitmo Co., Wm., 18 Broadway, New York
 Hays Bituminous Composition Co., Newport News, Va.
 Hill, Hubbell & Co., San Francisco
 Johns-Manville Co., 41st St. & Madison Av., New York
 Keystone Bitumen Enamels Co., Chester, Pa.
Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Protectus Paint Co., Philadelphia, Pa.
 Reliance Paint Co., 357 Bond St., Brooklyn, N. Y.
 Standard Paint Co., 233 Broadway, New York
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Wailles-Dove-Hermiston Corp, 17 Battery Pl., New York

PAINT, Black Drop, Dry

American Paint Works, 424 Josephine St., New Orleans
 Anti-Teredo Paint Co., San Francisco
 Brinistool Co., The, Mateo & Palmetto Sts., Los Angeles
 California Paint Co., Oakland, Cal.
 Duristo Paint Co., Inc., Newport News, Va.
 Fuller & Co., W. P., San Francisco
 Lucas & Co., John, 521 Washington St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, Baltimore
 Seattle Paint Co., Seattle, Wash.
 Toch Bros., 320 Fifth Av., New York
 Westmorland Chem. & Color Co., 925 Chestnut St., Phila.
 Wheeler Co., A., 58 High St., Boston

PAINT, Black Drop, in Oil

Adams & Elting, 724 Wash. Blvd., Chicago
 Bass Hueter Paint Co., 816 Mission St., San Francisco
 Briggs & Co., Inc., John, 45 Purchase St., Boston
 Burgess, Forbes Co., Portland, Me.
 California Paint Co., Oakland, Cal.
 Detroit White Lead Wks, Detroit, Mich.
 Devoe & Reynolds Co., 101 Fulton St., New York
 DuPont de Nemours & Co., I. E., Wilmington, Del.
 Glidden Co., Cleveland
 Johnson & Co., Inc., Oliver, Providence, R. I.
 Lewis & Bros., J. T., 705 Lafayette St., Philadelphia
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 New Jersey Paint Wks, Wayne & Fremont Sts., Jersey City, N. J.
 Oxidite Mfg Co., Arlington, Mass.
 Protectus Paint Co., N. A. Bldg., Philadelphia
 Seattle Paint Co., Seattle, Wash.
 Utley Paint Co., 938 Common St., New Orleans, La.
 Wadsworth, Howland & Co., Inc., 139 Federal St., Boston

PAINT, Blanc, Fixe, Dry

American Paint Wks, 424 Josephine St., New Orleans, La.
 Ault & Wiborg Co. of N. Y., 57 Greene St., New York
 California Paint Co., Oakland, Cal.
 Carpenter Co., Morton, 77 Sudbury St., Boston
 Chilton Paint Co., College Point, N. Y.
 Daigger & Co., A., 54 West Kinzie St., Chicago
 Fiegee & Bros., Inc., 185 Wooster St., New York
 Finck Mineral Mill Co., 101 W. Barton St., St. Louis, Mo.
 French Co., Samuel, Philadelphia
 Fuller & Co., W. P., San Francisco
 Klipstein & Co., A., 644 Greenwich St., New York
 Kohler-McLister Paint Co., Denver, Col.
 Osborn Co., C. J., 132 Nassau St., New York
 Peaslee-Gaulbert Co., Louisville, Ky.
 Pockles Drug, Glass & Paint Co., 2344 Gravois St., St. Louis, Mo.
 Toch Bros., 320 Fifth Av., New York
 Vane-Calvert Paint Co., 1601 N. Broadway, St. Louis, Mo.
 Yates & Co., Inc., 762 Folsom St., San Francisco

PAINT, Blanc, Fixe, in Oil

American Lacquer Co., Bridgeport, Conn.
 Arlington Mfg Co., Canton, Ohio
 Bridgeport Bronze Marine Paint Co., Bridgeport, Conn.
 Briggs & Co., Inc., Jno., 45 Purchase St., Baltimore

STERLING-COOPER CO., NEW YORK

Brown Paint Co., Chas. H., Brooklyn, N. Y.
 California Paint Co., Oakland, Cal.
 Chilton Paint Co., College Point, L. I., N. Y.
 Dozier & Gay Paint Co., Jacksonville, Fla.
 French Co., Samuel E., Philadelphia
 Fuller & Co., W. P., San Francisco
 Howell & Co., Chas. H., 212 Race St., Philadelphia
 Larkin Co., Buffalo, N. Y.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, 21 S. Gay St., Baltimore
 Patton Paint Co., Newark, N. J.
 Phelan, Faust Paint Co., St. Louis, Mo.
 Robertson Paint & Varnish Co., Cleveland
 Seattle Paint Co., Seattle, Wash.
 Toch Bros., 320 Fifth Av., New York
 Wilhelm Co., Reading, Pa.

PAINT, Blue Chinese, Prussian & Ultramarine, in Oil

Adams & Elting Co., 724 Wash. Blvd., Chicago
 American Paint Wks., 424 Josephine St., New Orleans
 Bass Hueter Paint Co., 816 Mission St., San Francisco
 Billings-Chapin Co., Cleveland
 Brinistool Co., Mateo & Palmetto Sts., Los Angeles
 California Paint Co., Oakland, Cal.
 Davis Co., H. B., Bayard & Severn Sts., Baltimore
 Devoe & Reynolds, 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 DuPont de Nemours & Co., I. E., Wilmington, Del.
 Enterprise Paint Mfg Co., 848 W. Van Buren, Chicago
 Felton, Sibley & Co., 136 N. 4th St., Philadelphia
 Fuller & Co., W. P., San Francisco
 Klipstein & Co., A., 654 Greenwich St., New York
 Lawrence & Co., W. W., West Carson St., Pittsburgh
 Lucas & Co., Inc., John, 521 Wash. St., New York
 McMurthy Mfg Co., 1533 Arapahoe St., Denver, Col.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, 21 S. Gay St., Baltimore
 Patton Paint Co., Newark, N. J.
 Peaslee-Gaulbert Co., Louisville, Ky.
 Protectus Paint Co., N. A., Bldg., Philadelphia
 Roman Paint Co., San Francisco
 St. Louis Surfer & Paint Co., St. Louis, Mo.
 Seattle Paint Co., Seattle, Wash.
 Toch Bros., 320 Fifth Av., New York
 Trus-Con Laboratories, The, Detroit, Mich.
 Wadsworth, Howland & Co., Inc., Boston
 Wheeler Co., A., 58 High St., Boston
 Wilhelm Co., A., Reading, Pa.

PAINT, Blue Ultramarine, Dry

American Paint Wks., 424 Josephine St., New Orleans, La.
 Ault & Wiborg of N. Y., 57 Green St., New York
 Bass Hueter Paint Co., 816 Mission St., San Francisco
 Brinistool Co., Mateo & Palmetto Sts., Los Angeles
 California Paint Co., Oakland, Cal.
 Carpenter, Morton Co., 77 Sudbury St., Boston
 Curry's Sons Co., Wm., Key West, Fla.
 Fuller & Co., W. P., San Francisco
 Hummel & Robinson, 26 Cortlandt St., New York
 Lewis & Bros., John T., 705 Lafayette St., Philadelphia
 Lucas & Co., Inc., John, 521 Wash. St., New York
 Osborn Co., C. J., 132 Nassau St., New York
 Pockels Drug, Glass & Paint Co., St. Louis, Mo.
 Seattle Paint Co., Seattle, Wash.
 Sieman & Elting, 99 Nassau St., New York
 Thompson Wood Finishing Co., 829 N. 3d St., Philadelphia
 Toch Bros., 320 Fifth Av., New York
 Scheel, Wm., 159 Maiden Lane, New York
 Yates & Co., Inc., 762 Folsom St., San Francisco

PAINT, Boot Topping Composition

Amalgamated Paint Co., Pier 11, N. R., New York
 American Marine Paint Co., 149 Calif. St., San Francisco
 Anti-Teredo Paint Co., San Francisco
 Atlantic Drier & Varnish Co., Philadelphia
 Berry Bros., Detroit, Mich.
 Baltimore Copper Paint Co., 501 Key Highway, Baltimore
 Briggs Bituminous Comp. Co., Inc., 17 Battery Pl., New York
 Brooklyn Varnish Mfg Co., 35 Nostrand Av., Bklyn., N. Y.
 Cail Bitmo Co., The Wm., 18 Broadway, New York
 California Paint Co., Oakland, Cal.
 Calman & Co., Emil, 100 William St., New York

DuPont de Nemours & Co., E. I., Wilmington, Del.
 Federal Comp. & Paint Co., Ltd., 17 Battery Pl., New York
 Hill, Hubbell & Co., San Francisco
 International Compositions Co., Inc., 25 Park Row, New York

Louisville Varnish Co., Louisville, Ky.,
 Lowe Bros. Co., Dayton, Ohio
Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, 21 S. Gay St., Baltimore
 Paraffine Cos., Ltd., The, San Francisco
 Red Hand Compositions Co., Inc., 1 Broadway, New York
 San Francisco Pioneer Varnish Wks., San Francisco
 Schenectady Varnish Co., Schenectady, N. Y.
 Seattle Paint Co., Seattle, Wash.
 Standard Varnish Works, 90 West St., New York
 Sullivan Varnish Co., The, 410 Hart St., Chicago
 Sun Varnish Co., The, Louisville, Ky.
 Toch Bros., 320 Fifth Av., New York
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Wadsworth, Howland & Co., Inc., Boston
 Williams Submarine Comp. Co., 21 State St., New York

PAINT, Brown-Metallic, Dry

American Paint Co., 424 Josephine St., New Orleans, La.
 Behlen & Bro., H., 10 Christopher St., New York
 Bradley & Vrooman Co., 2632 So. Dearborn St., Chicago
 California Paint Co., Oakland, Cal.
 Chilton Paint Co., College Point, L. I., N. Y.
 Curry's Sons Co., Wm., Key West, Fla.
 Davis Co., H. B., Bayard & Severn Sts., Baltimore
 Fuller & Co., W. P., San Francisco
 Lewis & Bros., John T., 705 Lafayette St., Philadelphia
 Lucas & Co., Inc., John, 521 Wash. St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Miller & Graham, 21 S. Gay St., Baltimore
 Oxidite Mfg Co., Arlington, Mass.
 Seattle Paint Co., Seattle, Wash.
 Shoemaker & Busch, 511 Arch St., Philadelphia
 Toch Bros., 320 Fifth Av., New York
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Vane-Calvert Paint Co., St. Louis, Mo.
 Wheeler Co., A., 58 High St., Boston

PAINT, Brown Metallic & Van Dyke, in Oil

Bridgeport Bronze Marine Paint Co., Bridgeport, Conn.
 Briggs & Co., Inc., Jno., 45 Purchase St., Boston
 Burgess, Forbes & Co., Portland, Me.
 Carpenter, Morton Co., 77 Sudbury St., Boston
 Devoe & Reynolds, 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 Felton, Sibley & Co., Inc., 136 N. 4th St., Philadelphia
 Foy Paint Co., Cincinnati
 Johnson & Co., Oliver, Providence, R. I.
 Lowe Bros. Co., Dayton, Ohio
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 N. J. Paint Co., Wayne & Fremont Sts., Jersey City, N. J.
 Phoenix Paint & Varnish Co., 124 Market St., Philadelphia
 Utley Paint Co., 938 Common St., New Orleans, La.
 Wadsworth, Howland & Co., Inc., Boston

PAINT, Bronze, Liquid Gold

American Lacquer Co., Bridgeport, Conn.
 Bridgeport Bronze Marine Paint Co., Bridgeport, Conn.
 California Paint Co., Oakland, Cal.
 Clement Conerall Co., 615 Van Hook St., Camden, N. J.
 Detroit White Lead Works, 560 Milwaukee Av., Detroit
 Horne & French, 99 Broad St., Boston
 Keystone Varnish Co., 71 Otsego St., Bklyn., N. Y.
 Larkin Co., Buffalo
 Lucas, John & Co., Inc., 521 Washington St., New York
 Miller & Graham, 21 Gay St., Baltimore
 Miller, Leonard Co., Inc., 15 Whitehall St., New York
 National Varnish Co., Long Island City, N. Y.
 Peaslee-Gaulbert Co., Louisville, Ky.
 Pockels Drug, Glass & Paint Co., St. Louis, Mo.
 Shoemaker & Busch, 511 Arch St., Philadelphia
 Standard Varnish Works, 90 West St., New York
 Thompson Wood Finishing Co., 829 N. 3d St., Philadelphia
 Thurston, F. W. Co., 1832 S. Clark St., Chicago
 Utley Paint Co., 938 Common St., New Orleans, La.
 Wadsworth, Howland & Co., Inc., 139 Federal St., Boston
 Wheeler Co., A., 58 High St., Boston

STERLING-COOPER CO., NEW YORK

PAINT, Bronze, Powdered, Dry

American Paint Works, 424 Josephine St., New Orleans
 Ault & Wiborg Co. of N. Y., 57 Greene St., New York
 Bass Rueter Paint Co., 806 Mission St., San Francisco
 Brininstool Co., Mateo & Palmetto Sts., Los Angeles
 Butters Aluminum Bronze Wks, 120 Broadway, New York
 California Paint Co., Oakland, Cal.
 Chilton Paint Co., College Point, L. I., N. Y.
 Curry's Sons Co., Wm., Key West, Fla.
 Fuller & Co., W. P., Box 3185, San Francisco
 Kohler-McLister Paint Co., Denver, Col.
 Malone Bronze Powder Works, Malone, N. Y.
 Seattle Paint Co., 224 Jackson St., Seattle, Wash.
 Toch Bros., 320 Fifth Av., New York

PAINT, Cold Water

Acme White Lead & Color Works, Detroit, Mich.
 American Paint Co., 424 Josephine St., New Orleans, La.
 Briggs Bituminous Comp. Co., Inc., 17 Battery Pl., New York
 Detroit Graphite Co., 120 Broadway, New York
 Fuller & Co., W. P., San Francisco
Marine Decking & Supply Co., Philadelphia, see p. 6
 Moore & Co., Benj., 231 Front St., Brooklyn, N. Y.
 Pittsburgh Plate Glass Co., Pittsburgh
 Red Hand Compositions Co., Inc., 1 Broadway, New York
 Sargent Paint Co., Indianapolis, Ind.
 Seattle Paint Co., Seattle, Wash.
 Tripod Paint Co., Atlanta, Ga.
 Trus-Con Laboratories, The, Detroit, Mich.
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Vortex Mfg Co., Cincinnati
 Wetherill & Co., Inc., Geo., 114 N. Front St., Philadelphia
 Yates & Co., Inc., 762 Folsom St., San Francisco

PAINT, Copper

Amalgamated Paint Co., Pier 11 N. R., New York
 Baltimore Copper Paint Co., 501 Key Highway, Baltimore
 Bridgeport Bronze Marine Paint Co., Bridgeport, Conn.
 Briggs & Co., Inc., Jno., 45 Purchase St., Boston
 Brininstool Co., Mateo & Palmetto Sts., Los Angeles
 California Paint Co., Oakland, Cal.
 Chilton Paint Co., College Point, L. I., N. Y.
 Curry's Sons Co., Wm., Key West, Fla.
 Davis Co., H. B., Bayard & Severn Sts., Baltimore
 Debevoise Co., 968 Grand St., Brooklyn, N. Y.
 DuPont de Nemours & Co., E. I., Wilmington, Del.
 Federal Comp. & Paint Co., Inc., 17 Battery Pl., New York
 International Compositions Co., 25 Park Row, New York
 Kuhls, H. B. Fred, Brooklyn, N. Y.
Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 N. J. Paint Co., Wayne & Fremont Sts., Jersey City, N. J.
 Paraffine Cos., Inc., The, San Francisco
 Seattle Paint Co., Seattle, Wash.
 Sherwin-Williams Co., Cleveland
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Woolsey Paint & Color Co., Jersey City, N. J.

PAINT, Deck & Smokestack

Amalgamated Paint Co., Pier 11, N. R., New York
 American Marine Paint Co., 149 Calif. St., San Francisco
 Baltimore Copper Paint Co., 501 Key Highway, Baltimore
 Bass Hueter Paint Co., 816 Mission St., San Francisco
 Bituminous Products Co., 1 Drumm St., San Francisco
 Briggs Bituminous Comp. Co., Inc., 17 Battery Pl., New York
 Cail Bitmo Co., The Wm., 18 Broadway, New York
 California Paint Co., Oakland, Cal.
 Childs & Co., Chas. M., 43 Summit St., Brooklyn, N. Y.
 Davis Co., H. B., Bayard & Severn Sts., Baltimore
 Debevoise Co., 968 Grand St., Brooklyn, N. Y.
 Devoe & Reynolds, 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 DuPont de Nemours & Co., E. I., Wilmington, Del.
 Federal Comp. & Paint Co., Inc., 17 Battery Pl., New York
 Fuller & Co., W. P., San Francisco
 Glidden Co., Cleveland
 Hill, Hubbell & Co., San Francisco
 International Comp. Co., 25 Park Row, New York
 Lewis & Bros., John T., 705 Lafayette St., Philadelphia
 Lucas & Co., John, 525 Wash. St., New York

Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Moore & Co., Benj., 231 Front St., Brooklyn, N. Y.
 N. J. Paint Co., Wayne & Fremont Sts., Jersey City, N. J.
 New Process Chem. Co., 39 Cortlandt St., New York
 Oxidite Mfg Co., Arlington, Mass.
 Paraffine Cos., Inc., The, San Francisco
 Patton Paint Co., Newark, N. J.
 Protectus Paint Co., N. A. Bldg., Philadelphia
 Red Hand Comp. Co., Inc., 1 Broadway, New York
 Seattle Paint Co., Seattle, Wash.
 Toch Bros., 320 Fifth Av., New York
 Tripod Paint Co., Atlanta, Ga.
 U. S. Gutta Percha Paint Co., Providence, R. I.
 Utley Paint Co., 938 Common St., New Orleans, La.
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Wadsworth, Howland & Co., Inc., Boston
 Wailes-Dove-Hermiston Corp., 17 Battery Pl., New York
 Williams Submarine Comp. Co., 24 State St., New York
 Yates & Co., Inc., 762 Folsom St., San Francisco

PAINT, Drier & Japan Drier (See Also Asphaltum)
Masury & Son, John W., Brooklyn, N. Y., see p. 69

PAINT, Enamel

Amalgamated Paint Co., Pier 11 N. R., New York
 American Turpentine Co., Cleveland
 Certain-Teed Products Corp., St. Louis, Mo.
 Chase, Roberts & Co., Long Island City, N. Y.
 Chicago White Lead & Oil Co., 15th & Western Av., Chicago
 Clement Coverall Co., Camden, N. J.
 Day & Co., Jas. B., 214 W. Ohio St., Chicago
 Debevoise Co., 968 Grand St., Brooklyn, N. Y.
 Devoe & Reynolds Co., Inc., 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 Enterprise Paint Mfg Co., Chicago
 Gilbert Spruance Co., 310 N. 3d St., Philadelphia
 Glidden Co. of Calif., 123 Hooper St., San Francisco
 Gosheen Mfg Co., Warren, Ohio
 Heath & Milligan Mfg Co., 1833 Seward St., Chicago
 Hill, Hubbell & Co., San Francisco
 International Comp. Co., 25 Park Row, New York
 Irvin, Jewell & Vinson Co., Dayton, Ohio
 Jamestown Paint & Varnish Co., Jamestown, Pa.
 Kay & Ess Co., Dayton, Ohio
 McMurthy Mfg Co., 1833 Arapahoe St., Denver, Col.
 Mamolith Carbon Paint Co., Cincinnati
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Mortell Co., J. W., Kankakee, Ill.
 N. J. Paint Co., Wayne & Fremont Sts., Jersey City, N. J.
 New Process Chem. Co., 39 Cortlandt St., New York
 O'Brien Varnish, South Bend, Ind.
 Reilly Co., Hugh, 1334 N. Y. Av., Washington, D. C.
 Ridgway-Quest Co., Chicago
 Rinland Bros., 1142 N. Hancock St., Philadelphia
 St. Paul White Lead & Oil Co., St. Paul, Minn.
 Seattle Paint Co., Seattle, Wash.
 Standard Varnish Works, 90 West St., New York
 Toch Bros., 320 Fifth Av., New York
 Tripod Paint Co., Atlanta, Ga.
 Utley Paint Co., 938 Common St., New Orleans, La.
 Wadsworth, Howland & Co., Inc., Boston
 Watson Paint & Glass Co., McKeesport, Pa.
 Yarnall Paint Co., 1026 Race St., Philadelphia

PAINT, Flexible Metallic

Devoe & Reynolds Co., 101 Fulton St., New York
 Elastic Compound Paint Co., 513 Kershaw St., Philadelphia
 Fuller & Co., W. B., San Francisco
Marine Decking & Supply Co., Philadelphia, see p. 6
 New Jersey Paint Co., Wayne & Fremont Sts., Jersey City, N. J.
 Seattle Paint Co., Seattle, Wash.
 Wadsworth, Howland & Co., Boston

PAINT, Green Chrome, in Oil (See Blue Chinese)

PAINT, Indian Red, Dry
 Red Venetian, Dry
 (See Blue Ultramarine, Dry)

PAINT, Indian Red & Red Venetian, in Oil
 (See Blue Chinese, in Oil)

STERLING-COOPER CO., NEW YORK

PAINT, Inside Green, Priming

Masury & Son, John W., Brooklyn, N. Y., see p. 69
(See also *Paint, Enamel*)

PAINT, Lacquer Thinner, Clear

Aetna Varnish Co., Vanderbilt Av., Brooklyn, N. Y.
American Lacquer Co., Bridgeport, Conn.
Briggs & Co., Inc., Jno., 45 Purchase St., Boston
Brininstool Co., Mateo & Palmetto Sts., Los Angeles
California Paint Co., Oakland, Cal.
Devoe & Reynolds Co., 101 Fulton St., New York
Fuller & Co., W. P., San Francisco
Lawrence & Co., W. W., Pittsburgh
Lucas & Co., Inc., John, 521 Washington St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
Paraffine Cos., Inc., San Francisco
Shoemaker & Busch, 511 Arch St., Philadelphia
Toch Bros., 320 Fifth Av., New York
Wadsworth, Howland & Co., Inc., Boston

PAINT, Lead, Red, Dry

Alton-Lucas Paint Co., 54 W. Kinzie St., Chicago
Ault-Wiborg Co. of N. Y., 57 Greene St., New York
Bass Hueter Paint Co., 816 Mission St., San Francisco
California Paint Co., Oakland, Cal.
Cheesman-Elliott Co., 23 Flatbush Av., Brooklyn, N. Y.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Eagle-Picher Lead Co., Chicago
French Co., Sam'l H., Philadelphia
Fuller & Co., W. P., San Francisco
Lead Products Co., 3215 Papin St., St. Louis, Mo.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
Miller & Graham, 21 So. Gay St., Baltimore
National Lead Co., New York
Seattle Paint Co., Seattle, Wash.
Toch Bros., 350 Fifth Av., New York
Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
United Lead Co., New York
Utley Paint Co., 938 Common St., New Orleans
Wheeler & Co., A., 58 High St., Boston

PAINT, Lead, White, in Oil

Chicago White Lead & Oil Co., 15th & Western Av., Chicago
Detroit White Lead Wks, Detroit, Mich.
Eagle-Picher Lead Co., 208 La Salle St., Chicago
Hammer Bros. White Lead Co., St. Louis, Mo.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
National Lead Co., 111 Broadway, New York
National Lead & Oil Co. of Pa., Pittsburgh
Pacific Lead & Oil Wks, 155 Townsend St., San Francisco
(See also *Other Paint Headings*)

PAINT, Linseed Oil, Boiled

American Turpentine Co., Cleveland
American Linseed Co., 233 Broadway, New York
Baltimore Oil Co., Baltimore
Baums Castorine Co., Rome, N. Y.
Day & Co., Jas. B., 214 W. Ohio St., Chicago
Hirst & Begley Linseed Wks, 2013 Mendel St., Chicago
Moore Oil Co., York & McLean Sts., Cincinnati
Pacific Oil & Lead Wks, 155 Townsend St., San Francisco
Red Wing Linseed Oil Co., Red Wing, Minn.
Zobel Co., Ernest, 112 Second Av., Brooklyn, N. Y.

PAINT, Linseed Oil, Raw

American Linseed Co., 233 Broadway, New York
Chicago White Lead & Oil Co., 15th & Western Av., Chicago
Georgia Pine Turpentine Co., 156 Perry St., New York
Midland Linseed Products Co., Minneapolis, Minn.
Minnesota Linseed Oil Paint Co., Minneapolis, Minn.
Pacific Oil & Lead Wks, San Francisco

PAINT, Litharge, Dry

Alton-Lucas Paint Co., Wade & Currier Sts., Chicago
Chilton Paint Co., College Point, L. I., N. Y.
DuPont de Nemours & Co., E. I., Wilmington, Del.
Eagle-Picher Lead Co., 208 La Salle St., Chicago
Fuller & Co., W. P., San Francisco
National Lead Co., 111 Broadway, New York
Pittsburgh Plate Glass Co., Long Island City, N. Y.
Seattle Paint Co., Seattle, Wash.

Toch Bros., 205 Fifth Av., New York
Wheeler & Co., A., 58 High St., Boston

PAINT, Luminous

Arnesto Manufacturing Co., 42 W. 99th St., New York
Billings-Chapin Co., The, Cleveland
Cold Light Mfg Co., Inc., 50 Union Square, New York
Heath & Milligan Mfg Co., 1833 Seward St., Chicago
National Paint & Varnish Co., 1 Madison Av., New York
Radium Chemical Co., 501 Fifth Av., New York
Radium Luminous Material Corp., 55 Liberty St., New York
Rex Paint Corporation, 32 Broadway, N. Y.

PAINT, Ochre, Yellow, in Oil

Masury & Son, John W., Brooklyn, N. Y., see p. 69
(See also *Blue Chinese*)

PAINT, Outside

Masury & Son, John W., Brooklyn, N. Y., see p. 69
(See also *Blue Chinese & Enamels*)

PAINT, Pink-Rose, in Oil (See Blue Chinese)**PAINT, Shellac****Shellac, Gum, White**

American Paint Co., 424 Josephine St., New Orleans, La.
Behlen & Bro., H., 10 Christopher St., New York
California Paint Co., Oakland, Cal.
Devoe & Reynolds Co., 101 Fulton St., New York
Fuller & Co., W. P., San Francisco
Helmuth, Inc., A., 28 Spruce St., New York
MacLac Co., 9 Cliff St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
New Process Chem. Co., 39 Cortlandt St., New York
Rogers-Pyatt Shellac Co., 81 Water St., New York
Standard Shellac Co., Inc., Freeport, N. Y.

PAINT, Sienna Burnt & Raw, Dry (See Blue Ultramarine, Dry)**PAINT, Sienna, Burnt & Raw, in Oil (See Blue Chinese in Oil)****PAINT, Smokestack (See Paint, Deck)****PAINT, Stain (See Blue Chinese, in Oil)****PAINT, Striping (See Paint, Deck & Smokestack)****PAINT, Turpentine**

American Turpentine Co., Cleveland
American Turpentine & Tar Co., Ltd., New Orleans, La.
Atlantic Turpentine Co., Savannah, Ga.
Antwerp Naval Stores Co., Savannah, Ga.
Columbia Naval Stores Co., Savannah, Ga.
Crockett Co., The David B., Bridgeport, Conn.
Fuller & Co., W. P., San Francisco
General Naval Stores Co., 90 West St., New York
Georgia Pine Turpentine Co. of N. Y., 156 Perry St., New York
Newman Lumber Co., J. J., Hattiesburg, Miss.
Seattle Paint Co., 224 Jackson St., Seattle, Wash.
Tower Varnish & Dryer Co., Dayton, Ohio
United Naval Stores Co., 130 Pearl St., New York
West Co., Inc., H. T., 148 State St., Boston
Western Rosin & Turpentine Co., Detroit, Mich.
Yaryan Rosin & Turpentine Co., Brunswick, Ga.

PAINT, Umber, Burnt & Raw, Dry (See Blue Ultramarine Dry)**PAINT, Umber, Burnt & Raw, in Oil (See Blue Chinese, in Oil)****PAINT, Varnish, Cabinet Rubbing****Damar****Interior****Spar****Waterproof**

American Paint Wks, 424 Josephine St., New Orleans, La.
Blackburn Varnish Co., Cincinnati
Benoit, Constant A., Sheepshead Bay, N. Y.
California Paint Co., Oakland, Calif.
Certain Teed Products Corp., 233 Broadway, New York
Cleveland Varnish Co., Cleveland
Coyne Bros. Varnish Co., 2nd & Pike Sts., Philadelphia

STERLING-COOPER CO., NEW YORK

Devoe & Reynolds Co., 101 Fulton St., New York
 Fuller & Co., W. P., San Francisco
 Glidden Co., Cleveland
 Keystone Varnish Co., 71 Otsego St., Brooklyn, N. Y.
 Louisville Varnish Co., Louisville, Ky.
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Murphy Varnish Co., 224 McWhorter St., Newark, N. J.
 North Star Varnish Co., St. Paul, Minn.
 Paraffine Cos., Inc., San Francisco
 Pratt & Lambert, Inc., Buffalo, N. Y.
 Seattle Paint Co., Seattle, Wash.
 Sherwin-Williams, Cleveland
 Sterling Varnish Co., Pittsburgh
 Union Paint Co., Inc., 247 Bush St., Brooklyn, N. Y.
 Valentine & Co., 456 Fourth Av., New York
 Van Camp Varnish Co., Cleveland
 Wadsworth, Howland & Co., Inc., Boston

PAINT, Yellow Chrome, Dry (See Blue Ultramarine, Dry)

PAINT, Yellow Chrome, in Oil (See Blue Chinese, in Oil)

PAINT, Zinc, White American, in Oil
White French, in Oil
Brown, in Oil

Arlington Mfg Co., Canton, Ohio
 Briggs & Co., Inc., Jno., 58 High St., Boston
 Brown Paint Co., Chas. H., Brooklyn, N. Y.
 Chilton Paint Co., College Point, L. I., N. Y.
 Devoe & Reynolds Co., 101 Fulton St., New York
 Dozier & Gay Paint Co., Jacksonville, Fla.
 Forbes, Burgess Co., Portland, Me.
 Fuller & Co., W. P., San Francisco
 Lowe Bros. Co., Dayton, Ohio
Masury & Son, John W., Brooklyn, N. Y., see p. 69
 Patton Paint Co., Newark, N. J.
 Protectus Paint Co., N. A. Bldg., Philadelphia
 Utley Paint Co., 938 Common St., New Orleans, La.
 Wheeler Co., A., 58 High St., Boston

PAINT SPRAYING EQUIPMENT

De Vilbiss Mfg Co., Toledo, Ohio
 Spray Engineering Co., 93 Federal St., Boston

PALMS, Roping

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Galbraith & Son, C. C., 90 West St., New York
 Kirk Habicht Co., The, 108 S. Calvert St., Baltimore
 Neptune Hardware Mfg Co., 80 Warren St., New York
 Richard Frank & Gardner Co., 47 South St., New York
 Smith & Son, Jas., 40 Franklin Av., Brooklyn, N. Y.
 Sunde & d'Evers Co., Colman Dock, Seattle, Wash.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Webb & Son Co., Elisha, Philadelphia
 Western Naval Stores Co., 667 Thornton St., San Francisco
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.
 Wilkins Co., Inc., W. P., Norfolk, Va.

PANEL MATERIAL, Switchboard

Benjamin Electric Mfg Co., Chicago
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Cleveland Switchboard Co., The, Cleveland
 Electric Engineers Equipment Co., Chicago
 Garfield Manufacturing Co., (Hard Rubber), Garfield, N. J.
 Hart & Hegeman Mfg Co., Hartford, Conn.
 India Rubber Co., New Brunswick, N. J.
 Johns-Manville Co., H. W., 41st St. & Madison Av., New York

Latham & Co., E. B., 550 Pearl St., New York
 Leonard-Bundy Electric Co., Cleveland
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Trumbull Electric Mfg Co., Plainville, Conn.
 Wurdack Electric Mfg Co., Wm., St. Louis, Mo.

PANELLING, (See Also Ceiling & Panelling Material)
Marine Decking & Supply Co., Philadelphia, see p. 6

PANELS

Allen-Bradley Co., The, 50 Church St., New York
 Betts & Betts Corp., 511 W. 42d St., New York
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Central Electric Co., Chicago

Chicago Switchboard Mfg Co., Chicago
 Crouse-Hinds Co., Syracuse, N. Y.
 Empire Engineer. & Supply Co., 1 Dominick St., New York
Cutler-Hammer Mfg. Co., 50 Church St., New York, see p. 35

Fullerton Electric Co., 15 W. 20th St., New York
 General Devices & Fittings Co., 817 W. Washington Blvd., Chicago

General Electric Co., Schenectady, N. Y., see pp. 36-41
 Industrial Controller Co., Milwaukee, Wis.
 Leonard Bundy Electric Co., Cleveland
 Manhattan Electrical Supply Co., 17 Park Pl., New York
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Mutual Electric & Machine Co., Detroit, Mich.
 Nyelec Switchboard Co., 422 E. 53d St., New York
 Ostrander & Co., W. R., 371 Broadway, New York
 Pittsburgh Electric & Machine Co., Pittsburgh
 Pringle Electric & Mfg Co., Philadelphia
 Roller Smith Co., 233 Broadway, New York
 Sprague Electric Works, 527 W. 34th St., New York
 Sterling Switchboard Co., Camden, N. J.
 Sundh Electric Co., 51 E. 42d St., New York
 Trumbull Electric Mfg Co., Plainville, Conn.
 Ward-Leonard Electric Co., Mt. Vernon, N. Y.
 Western Electric Co., 151 Fifth Av., New York
 Wondack Electric Mfg Co., Wm., St. Louis, Mo.
 Worcester Electric & Mfg Co., Worcester, Mass.

PAPER, Abrasive (See Abrasive Cloth & Paper)

PAPER, Blue Print (See Blue Print Paper)

PAPER, Brown Print

Amsler Blue Print Paper, 30 Church St., New York
 Anderson Paper Co., R. P., 731 13th St., Washington, D. C.
 Atlas Stationery Corp., 52 Duane St., New York
 Barclay & Sons, J. D., 1110-16 Sansom St., Philadelphia
 Defiance Mfg Co., 227 S. Broad St., Philadelphia
 Dietzgen & Co., Eugene, 218 E. 23d St., New York
 Elliott Co., B. K., The, Elliott Bldg., Pittsburgh
 Hano-Weinkrantz Co., Inc., 133 Mulberry St., New York
 Kolesch & Co., 138 Fulton St., New York
 Keuffel & Esser Co., Hoboken, N. J.
 Keystone Blue Paper Co., The, 910 Filbert St., Philadelphia
 Millar & Co., G. W., 284 Lafayette St., New York
 New York Blue Print Paper Co., 96 Reade St., New York
 Makepeace Co., Inc., B. L., 387 Washington St., Boston
 Paper Manufacturing Co., 526 Cherry St., Philadelphia
 Pease & Co., C. F., 213 Institute Pl., Chicago
 Post Co., Frederick, The, Irving Park Sta., Chicago
 Royal Card & Paper Co., 100 Worth St., New York
 Ruehle & Co., E. G., 180 Fulton St., New York
 Spaulding Moss Co., 44 Federal St., Boston
 Strathmore Paper Co., Mitteneague, Mass.
 Technical Supply Co., Scranton, Pa.
 U. S. Blue Print Paper Co., 327 So. La Salle St., Chicago
 Warren Knight Co., 136 W. 15th St., Philadelphia
 Weber & Co., F., 1125 Chestnut St., Philadelphia
 Weil & Co., J. H., 1300 Arch St., Philadelphia
 Wilkinson Bros. & Co., 419 Broome St., New York

PAPER, Filtering

Angel & Co., H. Reeve, 7 Spruce St., New York
 Hyland, Richard C., 310 Sansome St., San Francisco
 Lenz Apparatus Co., Inc., 18 E. 16th St., New York
 O'Meara Co., Maurice, 450 Pearl St., New York
 Standard Scientific Co., 147 Waverly Pl., New York
 Williams, Brown & Earle, Inc., Philadelphia

PAPER, Insulating (See Insulating Paper)

PAPER, Litmus, Strip (Blue & Red)

Atlantic Chemical Co., 50 Congress St., Boston
 Baker Chemical Co., Philipsburg, N. J.
 Cooper & Co., Chas., 194 Worth St., New York
 Daigger & Co., A., 54 W. Kinzie St., Chicago
 Eimer & Amend, 211 Third Av., New York
 General Chemical Co., 25 Broad St., New York
 General Platers Supply Co., 489 Broome St., New York
 Grady Mfg Co., 250 Ely Av., Long Island City, N. Y.
 Hanson & Van Winkle, 269 Oliver St., Newark, N. J.
 Hubbs & Co., Charles F., 389 Lafayette St., New York
 Lehn & Fink, 635 Greenwich St., New York
 Palo Co., 90 Maiden Lane, New York

STERLING-COOPER CO., NEW YORK

Powers, Weightman & Rosengarten Co., 145 Front St., New York
 Shoemaker & Busch, 511 Arch St., Philadelphia
 Squibb & Sons, E. R., 80 Beekman St., New York

PAPER, Tracing, Cross Section

Atlas Stationery Corp., 52 Duane St., New York
 Defiance Mfg Co., 227 S. Broad St., Philadelphia
 Keuffel & Esser Co., 300 Adams St., Hoboken, N. J.
 Kolesch & Co., 138 Fulton St., New York
 Makepeace, Inc., B. L., 387 Washington St., Boston
 National Tracing Cloth Co., Sayville, R. I.
 New York Blue Print Paper Co., 96 Reade St., New York
 Old Dominion Paper Co., 75 Commercial Pl., Norfolk, Va.
 Urquhart, Henry A., 16 Court St., Brooklyn, N. Y.

PAPER, Tracing, Plain

Amsler Blue Print Co., 30 Church St., New York
 Atlas Stationery Corp., 52 Duane St., New York
 Carter Rice & Co., 246 Devonshire St., Boston
 Defiance Mfg Co., 227 S. Broad St., Philadelphia
 Kolesch & Co., 138 Fulton St., New York
 Makepeace, Inc., B. L., 387 Washington St., Boston
 National Tracing Cloth Co., Sayville, R. I.
 New York Blue Print Paper Co., 96 Reade St., New York
 Old Dominion Paper Co., 75 Commercial St., Norfolk, Va.
 Technical Supply Co., Scranton, Pa.
 Tower, Eugene H., 311 Broadway, New York
 Urquhart, Henry A., 16 Court St., Brooklyn, N. Y.

PATTERNS

Aetna Fdry & Mach Co., The, Warren, Ohio
 American Pattern Works Co., York, Pa.
 Astoria Marine Iron Works, Astoria, Ore
 Baker Mfg Corp, Saratoga Springs, N. Y.
 Bayonne Steel Casting Co., Bayonne, N. J.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Bryan Pattern & Machine Co., The, Bryan, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Dibert, Bancroft & Ross Ltd., New Orleans, La.
 Donaldson & McCullough, 154 Main St., San Francisco
 Eagle Brass Fdry Co., Seattle, Wash.
 Eastern Production Co., Detroit, Mich.
 Eynon-Evans Corp, Philadelphia
 Interstate Pattern Works, Vancouver, Wash.
 Malleable Iron Fittings Co., Branford, Conn.
 Modern Mach. & Pattern Co., Terre Haute, Ind.
 Penn Seaboard Steel Corp, Franklin Truets Bldg., Philadelphia, see p. 18
 Portland Fdry Co., Portland, Conn.
 Troy Fdry & Machine Co., Troy, N. Y.

PELORUSES, Illuminated Dial (With or Without Stand)

Alford Mfg Co., Chelsea, Mass.
 Arma Engineering Co., 228 40th St., Brooklyn, N. Y.
 Berger & Sons, C. L., Boston
 Buff & Buff Mfg Co., Jamaica Plains, Boston
 Butler, Geo. E., San Francisco
 Harrison, Frank B., 2909 Indiana Av., Chicago
 Kelvin & Wilfrid O. White, Boston
 Jackson Co., Wm. H., 335 Carroll St., Brooklyn, N. Y.
 Lietz Co., A., 61 Post St., San Francisco
 Makepeace, Inc., B. L., 387 Wash. St., Boston
 Mayer & Bros. Joseph T., Seattle, Wash.
 Nautical Instrument Mfg Co., 47 West St., New York
 Precision Ther. & Instrument Co., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Radium Luminous Material Corp, 58 Pine St., New York
 Rieker Instrument Co., 1921 Fairmount Av., Philadelphia
 Ritchie & Sons, E. S., Brookline, Mass., see p. 22
 Star Compass Co., Dorchester, Mass.
 Stoelting Co., C. H., 3037 Carroll Av., Chicago

PENCILS, Soapstone, Metal Workers

Adams, D. C., 125 Market St., St. Louis
 Atlas Stationery Corp, 52 Duane St., New York
 Bainbridge & Co., Henry, 99 William St., New York
 Banks & Co., F. S., 78 Reade St., New York
 Barron & Co., J. S., 221 W. Broadway, New York
 Botts Marking Ink Co., 330 Pearl St., New York
 Defiance Mfg Co., 227 S. Broad St., Philadelphia

Dixon Crucible Co., Joseph, Jersey City, N. J.
 Old Dominion Paper Co., 75 Commercial Pl., Norfolk, Va.
 Stevenson & Marsters, Inc., 373 Fulton St., Brooklyn, N. Y.
 Talc Products Co., Inc., 7 Hanover St., New York
 Tobin Co., M. J., 34 Warren St., New York
 Tower, Inc., Eugene H., 311 Broadway, New York
 Weil & Co., J. H., 1300 Arch St., Philadelphia

PHOSPHOR BRONZE (See Bronze, Phosphor)

PHOSPHOR BRONZE CASTINGS (See Castings, Bronze, Phosphor)

PHOSPHOR COPPER (See Copper, Phosphor)

PHOSPHOR TIN (See Tin, Phosphor)

PHOTOSTAT MACHINERY

Commercial Camera Co., Rochester, N. Y.

PIG IRON (See Iron, Pig)

PILE DRIVERS

American Hoist & Derrick Co., St. Paul, Minn.
 Industrial Works, Bay City, Mich.
 McKiernan-Terry Drill Co., 15 Park Row, New York
 McMyler-Interstate Co., Cleveland
 Vulcan Iron Works, Chicago

PILING, N. C. Pine, Creosoted

American Creosoting Co., 17 Battery Pl., New York
 Atlantic Creosoting & Woodpiling Co., Norfolk, Va.
 Wyckoff Pipe & Creosoting Co., 30 E. 42d St., New York
 (See also Lumber and Specific Wood)

PILING, Sheet Steel

Lackawanna Steel Co., Lackawanna, N. Y.

PINCH BARS (See Bars, Chisel, Crow & Pinch)

PINE, Sugar

White, Northeast
 White, Western

Burritt, A. W., Bridgeport, Conn.

Central Timber Export Co., Inc., 115 Bway., New York
 Coale Lumber Co., Thomas E., Bellevue Court Bldg., Philadelphia

Elias & Bro., G., 965 Elk St., Buffalo
 Indiana Quartered Oak Co., Long Island City, N. Y.

James & Abbot Co., 155 Milk St., Boston
 Kalt Lumber Co., 320 E. 64th St., New York

McClave & Son, E. W., Harrison, N. J.
 Maloney & Co., J. A., 1182 Broadway, New York

National Timber Co., Mobile, Ala.
 Pacific Lumber Co. of Ill., 522 Fifth Av., New York

Red River Lumber Co., San Francisco
 Stansbury, Inc., Jas. H., Fulton St., & Farmers Av., Jamaica, N. Y.

Stevens-Eaton Co., 1 Madison Av., New York
 Whitmer & Sons, Inc., Wm., Finance Bldg., Philadelphia
 Whitney Lumber Co., Land Title Bldg., Philadelphia
 Wyatt Prock Lumber Co., Widener Bldg., Philadelphia

PINS, Cotter, Brass & Steel

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17

American Cotter Pin Co., Park Bldg., Pittsburgh
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Fischer Spring Co., Chas., 471 Kent Av., Brooklyn, N. Y.
 Hendley Manufacturing Co., Valley Falls, R. I.
 Hibbard, Spencer, Bartlett Co., State St. Bridge, Chicago
 McWhorter Manufacturing Co., Riverton, N. J.
 Mathews Co., H. W., Seymour, Conn.
 Morgan Spring Co., Worcester, Mass.
 New York Iron & Steel Prod. Co., 143 Chambers St., New York

Ohio Wire Goods Mfg Co., Akron, Ohio
 Turner & Stanton Co., Norwich, Conn.
 Whitman & Barnes Mfg Co., Akron, Ohio
 Wire Goods Co., The, Worcester, Mass.

PINS, Rawhide

Bailey-Lebby Co., Charleston, S. C.
 Brown Bros., Providence, R. I.
 Chicago Rawhide Mfg Co., 1301 Elston Av., Chicago
 Lawrence Belting Co., 111 Chambers St., New York
 Palmer & Co., N., Bridgeport, Conn.

STERLING-COOPER CO., NEW YORK

Peerless Belt Lacing Machine Co., Swanson & Moore Sts., Philadelphia

Simmonds Manufacturing Co., Philadelphia

Topping Bros., 122 Chambers St., New York

Western Rawhide & Belting Co., Milwaukee, Wis.

PIPE, Brass, Seamless Drawn Copper, Seamless Drawn

Amalgamated Products Co., 165 Broadway, New York

American Brass Co., Waterbury, Conn.

American Tube Works, 95 Broad St., Boston

Baltimore Tube Co., Baltimore

Bridgeport Brass Co., Bridgeport, Conn.

British-American Metals Co., 52 Vanderbilt Av., New York

Central Metal & Supply Co., 609 E. Lombard St., Baltimore

Chase Rolling Mills, Waterbury, Conn.

Cook Plate Co., Edward N., Providence, R. I.

Detroit Copper & Brass Rolling Mills, Detroit, Mich.

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Jolley & Co., J. H., 42 N. 5th St., Philadelphia

Merchant & Evans Co., Philadelphia

Midwest Brass & Copper Co., 480 Broome St., New York

Nason Manufacturing Co., 71 Fulton St., New York

National Brass & Copper Tube Co., Inc., 41 Park Row, New York

National Co., The, Waterbury, Conn.

New York Iron & Steel Prod. Co., 143 Chambers St., New York

Randolph-Clowes Co., 253 Broadway, New York

Rome Brass & Copper Co., Rome, N. Y.

Standard Plumb. Supply Co., 818 St. Ann's Av., New York

Taunton-New Bedford Copper Co., (Copper), New Bedford, Mass.

Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23

PIPE, Cast Iron

American Cast Iron Pipe Co., Birmingham, Ala.

Camden Iron Works, Camden, N. J.

Central Foundry Co., The, 90 West St., New York

Charlotte Pipe & Foundry Co., Charlotte, N. C.

Clow & Sons, James B., Chicago

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

National Cast Iron Pipe Co., Birmingham, Ala.

U. S. Cast Iron Pipe & Fdry Co., Philadelphia

Warren Foundry & Machine Co., 11 Broadway, New York

Wood & Co., R. D., 400 Chestnut St., Philadelphia

PIPE, Conduit, Brass

Amalgamated Products Co., 165 Broadway, New York

American Tube Works, 95 Broad St., Boston

Baltimore Tube Co., Baltimore

British-American Metals Co., 52 Vanderbilt Av., New York

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Jolley & Co., J. H., 42 No. 5th St., Philadelphia

Larkin & Co., J. K., 253 Broadway, New York

Merchant & Evans Co., Philadelphia

Midwest Brass & Copper Co., 480 Broome St., New York

National Brass & Copper Tube Co., Inc., 41 Park Row, New York

National Co., The, Waterbury, Conn.

Randolph-Clowes Co., 253 Broadway, New York

PIPE, Conduit, Steel

American Conduit Co., 103 Park Av., New York

American Conduit Mfg Co., East Chicago, Ind.

Burnet Co., The, 69 South St., New York

Central Electric Co., 320 So. Fifth Av., Chicago

Central Tube Co., First Nat'l Bank Bldg., Pittsburg

Crouse-Hinds Co., Syracuse, N. Y.

Electric Materials Co., 622 W. Jackson Blvd., Chicago

Enameled Metals Co., Etna, Pa.

Inland Electric Co., Chicago

National Metal Molding Co., Fulton Bldg., Pittsburg

Safety Armorite Conduit Co., Pittsburg

Sprague Electric Works, 527 W. 34th St., New York

Western Electric Co., 151 Fifth Av., New York

PIPE, Flush, Copper, Straight

Clow & Sons, J. B., Chicago

Columbus Brass Co., Columbus, Ohio

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Dearborn Brass Co., Cedar Rapids, Iowa

Douglass Co., John, 71st & C. H. & O. R. R., Cincinnati

Federal Huber Co., 234 N. Halstead St., Chicago

Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70

McCambridge Co., 315 N. 20th St., Philadelphia

Mott Iron Works, J. L., Trenton, N. J.

Sands & Son Co., A. B., 20 Vesey St., New York

Standard Plumb. Supply Co., 818 St. Ann's Av., New York

Walker Mfg & Supply Co., 61 Woodbridge St., W., Detroit, Mich.

PIPE, Lead and Lead Lined

American Lead Co., 52 Vanderbilt Av., New York

British-American Metals Co., 52 Vanderbilt Av., New York

Case & Son, W. A., Gravesend Av., Brooklyn, N. Y.

Chadwick-Boston Lead Co., 162 Congress St., Boston

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Cuyler & Mohler, 611 William St., Baltimore

Du Bois Co., F. N., 247 Ninth Av., New York

Eagle-Picher Lead Co., The, Chicago

Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Illinois Smelting & Refining Co., 410 N. Peoria St., Chicago

Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70

Keating Co., E. F., 446 Water St., New York

Lissberger & Sons, Marks, 281 Borden Av., Long Island City, N. Y.

Merchant & Evans Co., Philadelphia

Michigan Smelt. & Refin. Co., 480 Lexington Av., New York

Midwest Brass & Copper Co., 480 Broome St., New York

Miller & Son Co., Chas., Utica, N. Y.

Nason Manufacturing Co., 71 Fulton St., New York

National Lead Co., 111 Broadway, New York

Robertson Lead Co., Jas., 827 Howard St., Baltimore

Rochester Lead Mfg Co., Rochester, N. Y.

Rowe, R. P., 111 Broadway, New York

Sales & Co., Murray W., 74 Jefferson Av., Detroit, Mich.

Sandoval Zinc Co., Chicago

Simmons Co., John, 110 Center St., New York

Standard Plumb. Supply Co., 818 St. Ann's Av., New York

Standard Roll. Mills, Inc., 363 Hudson Av., Bklyn., N. Y.

Union Smelting & Refining Co., 63 Park Row, New York

United Lead Co., 111 Broadway, New York

PIPE, Steel, Welded

Amalgamated Products Co., 165 Broadway, New York

American Spiral Pipe Works, Chicago

American Tube Co., 27th & Rockwell Sts., Chicago

Carnegie Steel Co., Pittsburgh

Case & Son, W. A., Gravesend Av., Brooklyn, N. Y.

Central Tube Co., First Nat'l Bank Bldg., Pittsburgh

Chester Tube Co., South Chester, Pa.

Cincinnati Iron & Steel Co., Freeman Av. & Sargent St., Cincinnati

Cohoes Rolling Mill Co., Cohoes, N. Y.

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Cuyler & Mohler, 611 William St., Baltimore

Du Bois Co., F. N., 247 Ninth Av., New York

Ford & Kendig Co., 24th & Wood Sts., Philadelphia

Grant, Robert, 233 Broadway, New York

Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70

Jones & Laughlin Steel Co., 165 Broadway, New York

Keating Co., E. F., 446 Water St., New York

La Belle Iron Works, Steubenville, Ohio

Larkin & Co., J. K., 253 Broadway, New York

McMann & Taylor, 104 John St., New York

Maneely, John, 309 Arch St., Philadelphia

Mark Mfg Co., 11 W. Washington St., Chicago

Miller & Son Co., Chas., Utica, N. Y.

Nason Mfg Co., 71 Fulton St., New York

National Tube Co., Pittsburgh

O'Neill Supply Co., M., 25 Cliff St., New York

Pittsburgh Piping & Equipment Co., Pittsburgh

Republic Iron & Steel Co., Youngstown, Ohio

Simmons & Co., John, 110 Centre St., New York

Standard Plumb. Supply Co., 818 St. Ann's Av., New York

Wheeling Steel & Iron Co., Wheeling, W. Va.

STERLING-COOPER CO., NEW YORK

Youngstown Sheet & Tube Co., Youngstown, Ohio
PIPE, Seamless Steel (See Also Boiler Tubes, Seamless)
 National Tube Co., Pittsburgh

PIPE, Wrought Iron

Byers Co., A. M., Pittsburgh
 Central Tube Co., Pittsburgh
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 La Belle Iron Works, Steubenville, Ohio
 Larkin & Co., J. K., 253 Broadway, New York
 Reading Iron Co., Reading, Pa.
 Youngstown Sheet & Tube Co., Youngstown, Ohio
 Monongahela Tube Co., Pittsburgh

PIPE BENDING MACHINES (See Also Benders, Tube)

American Pipe Bending Machine Co., 37 Pearl St., Boston
 Treadwell Engineering Co., 140 Cedar St., New York
 Underwood Co., H. B., 1025 Hamilton Av., Philadelphia
 Wonder Pipe Bend. Mach. Co., 36 Bloomfield St., Boston

PIPE BENDS (See Also Coils & Bends, Refrigerating Pipe)

American Tube & Pipe Bending Co., Cleveland
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Harrisburg Pipe & Pipe Bending Co., Harrisburg, Pa.
 Whitney-MacDonald Co., Tioga St., Philadelphia

PIPE COVERINGS, Magnesia (See Also Asbestos Coverings)

Acme Asbestos Covering & Supply Co., Chicago
 Illinois Fireproof Covering Co., Inc., Chicago
 Nightingale & Childs Co., Boston
 Plant Rubber & Asbestos Wks, Brennan St., San Francisco

PIPE CUTTING & THREADING MACHINES

Bignall & Keeler Machine Works, Edwardsville, Ill.
 Cox & Sons Co., The, Philadelphia
 Curtis & Curtis Co., Bridgeport, Conn.
 Landis Machine Co., Waynesboro, Pa.
 Merrill Manufacturing Co., The, Toledo, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York
 Oster Manufacturing Co., Cleveland
 Saunder's Sons, Inc., Yonkers, N. Y.
 Standard Engineering Co., Elwood City, Pa.
 Taylor-Wilson Manufacturing Co., McKee's Rocks, Pa.

PIPE EXPANDING & FLANGING MACHINES

Lovekin Pipe Expanding & Flanging Co., 423 Chestnut St., Philadelphia, see p. 51

PIPE FITTERS TOOLS

Butterfield & Co., Derby Line, Vt.
 Saunder's Sons, D., Yonkers, N. Y.
 Trimont Mfg Co., Roxbury, Mass.
 Walworth Mfg Co., Boston
 Williams & Co., J. H., Brooklyn, N. Y.
(See also Dies)

PIPE FITTINGS & FLANGES, Brass

California Steam & Plumbing Supply Co., 617 Fifth St., San Francisco
 Clendenin, James, Baltimore
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore
 Dick Bros., Inc., Reading, Pa.
 Edelmann & Co., E., 361 E. Ohio St., Chicago
 Edwards Valve & Mfg Co., 72 Adams St., Chicago
 Exeter Brass Works, Exeter, N. H.
 Fairbanks Co., The, 416 Broome St., New York
 Federal Huber Co., Chicago
 Gilbert & Sons Brass Fdry Co., St. Louis, Mo.
 Glauber Brass Mfg Co., Cleveland
 Greensberg's Sons, 226 Beale St., San Francisco
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Jarecki Mfg Co., Erie, Pa.
 Jenkins Mfg Co., 20 Vesey St., New York
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Kelley & Jones Co., Greenburg, Pa.
 Levering Bros., 200 Key Highway, Baltimore
 Little, H. S., Folsom St., San Francisco
 McNab & Harlin Mfg Co., 55 John St., New York
 McRae & Roberts Co., Detroit, Mich.

Michigan Lubricator Co., Detroit, Mich.
 Monarch Brass Co., Cleveland
 Morreau Co., Cleveland
 Mueller Metals Co., Port Huron, Mich.
 National Valve & Mfg Co., Pittsburgh
 Northwestern Heating & Contracting Co., Erie, Pa.
 Peck Bros. & Co., New Haven, Conn.
 Penn Brass & Bronze Wks, 111 Dobbin St., Bklyn., N. Y.
 Richardson Brass Co., Edw., Baltimore
 Rider Bagg Co., Springfield, Mass.
 Robertshaw Mfg Co., Youngwood, Pa.
 Sands & Son Co., A. B., 22 Vesey St., New York
 Sherman Mfg Co., H. B., Battle Creek, Mich.
 Walworth Mfg Co., Boston
 Ware Coupling & Nipple Co., Ware, Mass.
 Williams Valve Co., D. T., Cincinnati
 Williamson & Co., F., 601 W. Wash. St., Chicago

PIPE FITTINGS & FLANGES, Cast Iron

American Cast Iron Pipe Co., Birmingham, Ala.
 California Steam & Plumbing Supply Co., 617 Fifth St., San Francisco
 Chapman Valve Mfg Co., Indian Orchard, Mass.
 Charlotte Pipe & Fdry Co., Charlotte, N. C.
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore
 Detroit Valve & Fittings Co., 331 Holden Av., Detroit, Mich.
 Edwards Valve & Mfg Co., 72 Adams St., Chicago
 Essex Foundry, Newark, N. J.
 Federal Steam & Gas Supply Co., Boston
 Hammond-Byrd Iron Co., Birmingham, Ala.
 Illinois Malleable Iron Co., Chicago
 Jarecki Mfg Co., Erie, Pa.
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Kelley & Jones Co., Greenburg, Pa.
 Krupp Foundry Co., Lansdale, Pa.
 McNab & Harlin Mfg Co., 55 John St., New York
 National Cast Iron Pipe Co., Birmingham, Ala.
 National Valve & Mfg Co., Pittsburgh
 Northwestern Heating & Contracting Co., Erie, Pa.
 Pittsburgh Valve Fdry & Construction Co., Pittsburgh
 U. S. Cast Iron Pipe & Fdry Co., 1421 Chestnut St., Philadelphia

Walworth Mfg Co., Boston

Warren Fdry & Machine Co., 11 Broadway, New York

PIPE FITTINGS & FLANGES, Cast Iron & Malleable

American Cast Iron Pipe Co., Birmingham, Ala.
 Bosworth-Ard Machine & Fdry Co., Anniston, Ala.
 Columbia Manufacturing Co., Columbia, Pa.
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore
 Detroit Brass Works, 331 Holden Av., Detroit
 Detroit Valve & Fittings, 331 Holden Av., Detroit
 Edward Valve & Mfg Co., 72 Adams St., Chicago
 Fairbanks Co., 416 Broome St., New York
 Federal Huber Co., Halstead & Fulton St., Chicago
 Federal Steam & Gas Supply Co., 36 Purchase St., Boston
 General Pipe & Foundry Co., Atlanta, Ga.
 Grabler Manufacturing Co., Cleveland
 Haines, Jones & Cadbury Co., 1136 Ridge Av., Philadelphia
 Hammond-Byrd Iron Co., Birmingham, Ala.
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70
 Kelley & Jones, 115 Franklin St., New York
 Moninger Co., John C., 900 Blackhawk St., Chicago
 National Valve & Mfg Co., 31st & Liberty Av., Pittsburgh
 Northwestern Heating & Contracting Co., 11 W. 8th St., Erie, Pa.
 Sharon Iron & Metal Co., Sharon, Pa.
 Simmons Co., John, 104 Centre St., New York
 U. S. Cast Iron Pipe & Fdry Co., Philadelphia

PIPE FITTINGS & FLANGES, Composition

California Steam & Plumbing Supply Co., 617 Fifth St., San Francisco
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore
 Edro Richardson Brass Co., 318 N Holliday St., Baltimore
 Edward Valve & Mfg Co., 31st & Liberty Av., Pittsburgh

Fairbanks Co., 416 Broome St., New York
 Federal Huber Co., Halsted & Fulton St., Chicago
 Jarecki Manufacturing Co., Erie, Pa.
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

Kelley & Jones, 115 Franklin St., New York
 McRae & Roberts Co., Detroit, Mich.
 National Valve & Mfg Co., 31st & Liberty Av., Pittsburgh
 Northwestern Heat. & Cont. Co. 11 W. 8th St. Erie, Pa.
 Peck Bros. & Co., Chestnut St., New Haven, Conn.
 Penn. Brass & Bronze Wks, 111 Dobbin St., Bklyn., N. Y.
 Sands & Son Co., A. B., 20 Vesey St., New York
 Sherman Mfg Co., H. B., Battle Creek, Mich.
 Simmons Co., John, 104 Centre St., New York
 Somerville Co., T., 312 13th St., N. W. Washington D. C.
 Walworth Manufacturing Co., Philadelphia
 Ware Coupling & Nipple Co., Norse Av., Ware, Mass.
 Williams Valve Co., D. T., Spring Grove Av. & Township
 St., Cincinnati

PIPE FITTINGS & FLANGES, Copper

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore

Edro Richardson Brass Co., 318 N. Holliday St., Baltimore
 Edwards Valve & Mfg Co., 72 Adams St., Chicago
 Fairbanks Co., 416 Broome St., New York
 Federal Huber Co., Halsted & Fulton St., Chicago
 Hydraulic Press Mfg Co., Mount Gilead, Ohio
 Illinois Malleable Iron Co., 1801 Diversey Parkway,
 Chicago

Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

Kelley & Jones Co., 115 Franklin St., New York
 National Valve & Mfg Co., 31st & Liberty Av., Pittsburgh
 Northwestern Heat. & Cont. Co. 11 W. 8th St., Erie, Pa.

PIPE FITTINGS & FLANGES, Galvanized Iron

California Steam & Plumbing Supply Co., 617 Fifth St.,
 San Francisco

Central Electric Co., 316 So. Wells St., Chicago
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Cuyler & Mohler, Baltimore, Md.

Detroit Brass Works, 331 Holden Av., Detroit, Mich.
 Detroit Valve & Fittings & Detroit Brass Works, 331
 Holden Av., Detroit, Mich.

Edwards Valve & Mfg Co., 72 Adams St., Chicago
 Essex Foundry, Newark, N. J.

Fairbanks Company, 416 Broome St., New York
 Federal Huber Co., Halsted & Fulton Sts., Chicago
 Federal Steam & Gas Supply Co., 36 Purchase St., Boston
 Grabler Manufacturing Co., Cleveland
 Illinois Malleable Iron Co., 1801 Diversey Parkway,
 Chicago

Jarecki Manufacturing Co., Erie, Pa.
Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70

Kelley & Jones Co., 115 Franklin St., New York
 National Valve & Mfg Co., 31st & Liberty Av., Pittsburgh
 Northwestern Heat. & Cont. Co., 11 W. 8th St., Erie, Pa.

Walworth Manufacturing Co., Boston
 Ware Coupling & Nipple Co., Norse Av., Ware, Mass.

PIPE FITTINGS & FLANGES, Steel

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Edward Valve & Mfg Co., The, Chicago

Kelly & Jones Co., The, Greensburg, Pa.
 Limbert & Co., Geo. B., Chicago

Pittsburgh Piping & Equipment Co., Pittsburgh
 Reading Valve & Fittings Co., Reading, Pa.

Vogt Machine Co., Henry, Louisville, Ky.

PIPE HANGERS

Edro-Richardson Brass Co., The, Baltimore

PIPE THREADING MACHINES (See Pipe Cutting)

PIPE WRENCHES (See Wrenches, Pipe)

PITCH, Coal Tar

Pine

Baltimore Copper Paint Co. (Coal), 501 Kings Highway,
 Baltimore

Barrett Company, The (Coal), 17 Battery Pl., New York
 Cabot, Inc., Samuel (Coal), 141 Milk St., Boston

Cail Bitmo Co., The William (Coal), 18 Bway., New York
 Carey & Co., Phillip, Lockland, Cincinnati

Casey Co., John A., 50 Church St., New York
 Feigel & Bro., M. (Coal), 185 Wooster St., New York
 Greig, John, 39 Cortland St., New York
 Industrial Pitch & Tar Products, Inc., 985 Wyckoff Av.,
 Brooklyn, N. Y.

Lewis Manufacturing Co., F. J. (Coal), 250 S. Robey St.,
 Chicago

Miller & Graham (Pine), Gay St., Baltimore
 National Rosin Oil & Size Co. (Pine), 90 West St., New
 York

Rex Paint Corporation, 32 Broadway, New York
 Schlegel Mfg Co., Oscar, 124 E. 13th St., New York

United Naval Stores Co., 130 Pearl St., New York
 West Co., Inc., H. T., (Pine), 141 Milk St., Boston

Zobel Co., Ernst, 112 Second Av., Brooklyn, N. Y.

PLANERS, Open Side, Belt Driven

Frevert Machy Co., 38 Vesey St., New York
 Garvin Machine Co., 139 Varick St., New York

Manning, Maxwell & Moore, 119 W. 40th St., New York
 Monarch Machinery Co., Philadelphia

Underwood & Co., H. B., Philadelphia
 Whitcomb-Blaisdell Mach. & Tool Co., Worcester, Mass.

PLANERS, Pneumatic, Wood Cutting

Oldham & Son Co., George, Frankford, Philadelphia,
 see p. 94

Turbine Air Tool Co., Cleveland

PLANERS, Reversing, Motor Driven

American Tool Wks Co., The, Cincinnati
 Betts Machine Co., Rochester, N. Y.

Cincinnati Planer Co., The, Cincinnati
 Frevert Machinery Co., 38 Vesey St., New York

Garvin Machine Co., 139 Varick St., New York
 Hendey Machine Co., Torrington, Conn.

Henes, Louis G., San Francisco
 Herberts Machy & Supply Co., Los Angeles

Hill, Clarke & Co., Boston
 Manning, Maxwell & Moore, 119 W. 40th St., New York

Monarch Mach. Co., Philadelphia
 Newton Mach. Tool Works, Philadelphia

Niles-Bement-Pond Co., 111 Broadway, New York
 Powell Machine Co., Worcester, Mass.

Prentiss & Co., Inc., Henry, 149 Broadway, New York
 Sellers & Co., Wm., Philadelphia

Underwood & Co., H. B., Philadelphia
 Van Dyck Churchill Co., 85 Liberty St., New York

Whitcomb-Blaisdell Mach. Tool Co., Worcester, Mass.

PLANERS, Rotary

Cleveland Punch & Shear Works, Cleveland
 Newton Mach. Tool Works, Philadelphia

Niles-Bement-Pond Co., 111 Broadway, New York
 Underwood & Co., H. B., Philadelphia

PLANERS, Travelling Head

Morton Mfg Co., Muskegon Hts., Mich.
 Niles-Bement-Pond Co., 111 Broadway, New York

PLANERS, Valve Reseating

Leavitt Machine Co., The, 70 East River St., Orange,
 Mass., see pp. 125-127

PLANERS, Wood

National Woodworking Mach. Co., Dover, N. H.
 Valley City Mach. Wks., Grand Rapids, Mich.

Whitney & Son, Inc., B. D., Winchendon, Mass.

PLANES, Beading & Matching

Block
 Bull Nose, Rabbet

Combination
 Fore, Iron Top

Fore, Wood
 Jack

Joiner
 Matching

Rabbet
 Smoothing, Iron

Smoothing, Iron Top, Wood Bottom
 Armstrong Bros. Tool Co., Chicago

Brombacher & Co., A. F., 31 Fulton St., New York
 Buckeye Saw Vise Co., Cleveland

Cameron & Byington, 143 Chambers St., New York
 Clipper Tool Co., Buffalo, N. Y.

Dale Brewster Mach. Co., Inc., Lafayette St., New York

STERLING-COOPER CO., NEW YORK

Davis-Hunt-Colister Hdw. Co., Cleveland
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 2 South St., New York
 Galbraith & Son, C. C., 117 West St., New York
 General Mach. & Supply Co., 302 Broadway, New York
 Hammacher, Schlemmer & Co., 133 Fourth Av., New York
 Harris & Co., Samuel, 114 N. Clinton St., Chicago
 Kurzon, Chas., 159 E. Houston St., New York
 Peck, Stow & Wilcox, 46 W. Broadway, New York
 Sandusky Tool Co., Sandusky, Ohio
 Sargent & Co., 94 Centre St., New York
 Shapleigh Hardware Co., St. Louis, Mo.
 Stanley Rule & Level Co., The, New Britain, Conn.
 United Shoe Machine Co. (Block), Boston
 Walls Tool & Supply Co., T. P., 25 Leonard St., New York
 Wellman Pattern Supply Co (Jack), Cleveland

PLANIMETERS

American Steam Gauge & Valve Mfg Co., Boston
 Ashcroft Mfg Co., 119 W. 40th St., New York
 Bristol Co., The, Waterbury, Conn.
 Crosby Steam Gauge & Valve Co., 100 Walker St., New York

Foxboro Co., Inc., The, Foxboro, Mass.
 Keuffel & Esser, Hoboken, N. J.
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Schaeffer & Budenberg Mfg Co., Brooklyn, N. Y.
 Thompson & Co., Richard, 187 Greenwich St., New York
 Trill Indicator Co., Corry, Pa.

PLATE BENDING ROLLS (See Bending Rolls, Plate)**PLATE & ANGLE HEATING FURNACES (See Furnaces, Angle)****PLATES, Surface (See Surface Plates)****PLIERS, Combination**

Bergman Tool Mfg Co., Buffalo, N. Y.
 Carson-Newton Co., 21 Prospect, Newark, N. J.
 Cincinnati Tool Co., Cincinnati
 Cutter & Woods Supply Co., Boston
 Flint & Chester, 2 South St., New York
 Hjorth & Co., Wm., Jamestown, N. Y.
 Kemp Machine Co., 233 N. Calvert St. Baltimore
 Nock & Co., Inc., Geo. W., 1304 Race St., Philadelphia
 Reed Mfg Co., Erie, Pa.
 Roberts Electric Supply Co., H. C., Philadelphia
 Smith & Hemenway Co., Irvington Centre, N. J.
 Utica Drop Forge & Tool Co., Utica, N. Y.
 Wiebusch & Hilger, 106 Lafayette St., New York

PLUGS, Attachment, Non-Watertight, Metal Cover

Cutler-Hammer Mfg. Co., 50 Church St., New York, see p. 35

General Electric Co., Schenectady, N. Y., see pp. 36-41
 (See also Plugs, Watertight)

PLUGS, Attachment, Water Tight

Benjamin Electric Mfg Co., Chicago
 Bryant Electric Co., Bridgeport, Conn.
 Butte Engineering & Electric Co., San Francisco
 Central Electric Co., Chicago
 Cory & Son, Inc., Chas., 183 Varrick St., New York
 Lincoln Electric Works, Chicago
 Lovell & Co., F. H., Arlington, N. J.
 Marine Electric Co., San Francisco
 Philadelphia Electric Co., The, 132 S. 11th St., Philadelphia
 Pittsburgh Electric & Machine Co., Pittsburgh
 Samson Electric Co., Canton, Mass.
 Union Electric Co., Trenton, N. J.

PLUGS, Fusible Boiler (See Fusible Plugs)**PLUMBAGO (See Graphite)****PLUMBERS' SUPPLIES (See Specific Heading)****PLUMBERS' TOOLS**

Anderson Tool & Supply Co., W. H., Detroit, Mich.
 Erie Tool Works, The, Erie, Pa.
 Western Metal Supply Co., San Diego, Cal.
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.

PLUMBING, Marine

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Curtis Co., Inc., J. H., 2 South St., New York

Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y., see p. 70

McCambridge Co., Philadelphia

Mott Iron Works, J. L., Trenton, N. J.

Sands & Son Co., A. B., 20 Vesey St., New York

PNEUMATIC TOOLS

Anderson Bros. Mfg Co., Rockford, Ill.
 Baird Pneumatic Tool Co., Cleveland
 Chicago Pneumatic Tool Co., Chicago
 Cleveland Pneumatic Tool Co., Cleveland
 Herwig Manufacturing Co., St. Paul, Minn.
 Independent Pneumatic Tool Co., Chicago
 Ingersoll-Rand Co., 11 Broadway, New York
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Oldham & Son Co., George, Frankford, Philadelphia, see p. 94

Pittsburgh Pneumatic Tool Co., Canton, Ohio

Shaw Pneumatic Tool Co., Denver, Col.

Turbine Air Tool Co., Cleveland

(See also Specific Heading)

POPLAR

Atlantic Lumber Co., 70 Kelly St., Boston
 Bacon & Sons, A. S., Savannah, Ga.
 Carvin, E. T., 17 Battery Place, New York
 Davis Lumber Co., Edw. L., Louisville, Ky.
 Hunt, Washington & Smith, Nashville, Tenn.
 Louisiana Red Cypress Co., Hibernia Bank Bldg., New Orleans, La.
 Mansfield Hardwood Lbr. Co. of La., Winnfield, La.
 National Timber Co., Mobile, Ala.
 Stevens-Eaton Co., 1 Madison Av., New York
 Watson Lumber Co., Inc., 186 Sixth St., Brooklyn, N. Y.

PORT LIGHTS (See Air Ports)**POTATO PEELING MACHINES, Electric**

American Machine Co., 141 W. 36th St., New York
 Belding & Franklin Machine Co., 534 West St., New York
 Blakeslee & Co., G. S., 244 W. 14th St., New York
 Imperial Mach & Fdry Corp, 108 W. 34th St., New York
 Maxim Mfg Co. (15-lb. Cap Only), 700 W. 22d St., Chicago
 Stretter & Co., N. R., 220 N. Water St., Rochester, N. Y.

POTENTIOMETERS

Biddle, Jas. G., 1211 Arch St., Philadelphia
 Pyroelectric Instrument Co., Trenton, N. J.
 Queen-Gray Co., Philadelphia
 Tideman Electric Mfg Co., Menominee, Mich.

POTS, Hardening (See Hardening Pots)**PRESSES, Arbor, Permanent List**

Atlas Press Mfg Co., Kalamazoo, Mich.
 Bartlett Co., Edwin E., Nashua, N. H.
 Weaver Mfg Co., Springfield, Ill.

PRESSES, Bending, Ship Frame (See Benders, Ship Frame)**PRESSES, Drill (See Drills)****PRESSES, Flanging**

Southwark Fdry & Mach Co., Philadelphia

PRESSES, Riveting (See Riveters)**PRESSES, Hydraulic**

Chambersburg Engineering Co., Chambersburg, Pa.
 Elmer Engineering Wks, Chas. F., Morgan & Fulton Sts., Chicago

Hydraulic Press Mfg Co., Mt. Gilead, Ohio
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Niles-Bement-Pond Co., 111 Broadway, New York
 Robertson & Co., Inc., John, 133 Water St., Bklyn., N. Y.
 Ryerson & Son, Jos. T., Chicago
 Southwark Foundry & Machine Co., Philadelphia
 Watson-Stillman Co., 50 Church St., New York
 Wood & Co., R. D., Philadelphia

PRESSES, Hydraulic, Portable

Southwark Foundry & Machine Co., Philadelphia
 Vulcan Iron Works, Chicago

PRESSES, Power, Inclined

Adriance Mach Wks, Inc., 80 Richards St., Bklyn., N. Y.
 Baird Mach. Co., Bridgeport, Conn.
 Bliss Co., E. W., Brooklyn, N. Y.

STERLING-COOPER CO., NEW YORK

Consolidated Press & Tool Co., Hastings, Mich.
 Lashbough-Jordan Tool & Mach. Co., Elkhart, Ind.
 Monarch Machinery Co., Philadelphia
 Nast Machinery Co., D., Philadelphia
 Niles-Bement-Ponds Co., 111 Broadway, New York
 Southwark Foundry & Machine Co., Philadelphia
 V. & O. Press Co., Brooklyn, N. Y.
 Zeh & Hahnemann Co., Newark, N. J.

PRESSES, Trimming

Bliss & Co., E. W., Brooklyn, N. Y.
 Billings & Spencer, Hartford, Conn.
 Ferracute Machine Co., Bridgeton, N. J.
 Hilles & Jones, Wilmington, Del.
 Leffler & Co., Chas., 71 Clymer St., Brooklyn, N. Y.
 Long & Allstatter Co., Hamilton, Ohio
 Niagara Mach & Tool Wks, Buffalo, N. Y.
 Southwark Foundry & Machine Co., Philadelphia
 Wood & Co., R. D., Philadelphia

PRESSURE REGULATORS

American Steam Gauge & Valve Mfg Co., Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 D'Este Co., Julian, 26 Canal St., Boston
 Ford Co., The Thomas, 409 Broome St., New York
 Foster Engineering Co., Newark, N. J.
 Illinois Engineering Co., Chicago
 Kieley & Mueller, Inc., 34 W. 13th St., New York
 Leslie Co., The, Lyndhurst, N. J., see p. 122
 Lunkenheimer Co., The, Cincinnati
 Mason Regulator Co., Boston
 Pratt & Cady Co., Hartford, Conn.
 Scott Valve Manufacturing Co., Detroit, Mich.
 Witt Co., G. E., San Francisco

PROPELLERS & PROPELLER BLADES, Manganese Bronze

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Columbian Bronze Corp, 522 Fifth Av., New York, see p. 72
 Cramp & Sons Ship & Engine Bldg Co., The Wm., Philadelphia
 Doran Brass Foundry Co., 75 Horton St., Seattle, Wash.
 Hyde Windlass Co., Bath, Me.
 Oregon Brass Works, 2d & Everett Sts., Portland, Ore.
 Trout Co., H. G., Buffalo, see p. 73

PROPELLERS, Semi-Steel

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Brady Fdry Co., The Jas. A., Western Blvd., Chicago
 Cramp & Sons Ship & Engine Bldg Co., The Wm., Philadelphia
 Ellicott Machine Corp, Baltimore
 Grays Engineering Works, Galveston, Texas
 Hardie-Tynes Mfg Co., Birmingham, Ala.
 Kerr Machinery Corp, Detroit, Mich.
 Lacy Co., James J., Baltimore
 Thatcher Propeller & Fdry Co., Albany, N. Y.
 Trout Co., H. G., Buffalo, see p. 73

PULLS, Bell, Brass

Corbin, P. & F., New Britain, Conn.
 Dent Hardware Co., Fullerton, Pa.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Laughlin Co., The Thos., 143 Fore St., Portland, Me.
 Starr Bros Bell Co., East Hampton, Conn.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Wilcox Crittenden Co., Middletown, Conn.

PUMP GOVERNORS

Ford Co., The Thomas, 409 Broome St., New York
 Ford & Geirrine, San Francisco
 Foster Engineering Co., Newark, N. J.
 Leslie Co., The, Lyndhurst, N. J., see p. 122
 Mason Regulator Co., Boston
 Williams Gauge Co., Pittsburgh

PUMP VALVES, Metallic

Katzenstein & Co., L., 358 West St., New York
 Kelly & Jones Co., Greensburg, Pa.
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81
 (See also your Pump Mfrs.)

PUMP VALVES, Rubber

American Vulcanized Fibre Co., Wilmington, Del.
 Goodrich Rubber Co., The B. F., Akron, Ohio
 Jenkins Bros., 80 White St., New York
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 Quaker City Rubber Co., Philadelphia
 United States Rubber Co., 1790 Broadway, New York, see p. 57
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81
 (See also your Pump Mfrs.)

PUMPS, Centrifugal, Condensate

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUMPS, Centrifugal, Dredging

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Lawrence Machine Works, Lawrence, Mass.
 Morris Machine Works, Baldwinsville, Pa.
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUMPS, Centrifugal, Dry Dock

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Cameron Steam Pump Wks, 11 Broadway, New York
 Cramp & Sons Ship & Engine Bldg Co., The Wm., Philadelphia
 De Laval Steam Turbine Co., Trenton, N. J., see pp. 106 & 107
 Kingsford Foundry & Machine Works, Oswego, N. Y.
 Lawrence Machine Co., Lawrence, Mass.
 Midwest Engine Co., Indianapolis, Ind.
 Morris Machine Works, Baldwinsville, Pa.
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23
 Worthington Pump & Machinery Corp, 115 Broadway, New York, see pp. 74-81

PUMPS, Centrifugal, Engine Driven

(Suitable for Circulating, Drainage and Similar Low Pressure Duty; of Low and Medium Capacities)
 Alberger Pump & Condenser Co., 140 Cedar St., New York
 Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Cramp & Sons Ship & Engine Bldg Co., Philadelphia
 Goulds Mfg Co., Seneca Falls, N. Y.
 Kingsford Foundry & Machine Co., Oswego, N. Y.
 Lawrence Machine Co., Lawrence, Mass.
 Morris Machine Works, Baldwinsville, Pa.
 Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUMPS, Centrifugal, Fire Boat Service

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Cramp & Sons Ship & Engine Bldg Co., The Wm., Philadelphia
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

STERLING-COOPER CO., NEW YORK

PUMPS, Centrifugal, Motor & Turbine Driven
(Suitable for Circulating, Drainage & Similar Low Pressure Duty; of all Capacities)

Alberger Pump & Condenser Co., 140 Cedar St., New York
Allis-Chalmers Mfg Co., Milwaukee, Wis.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Co., 11 Broadway, New York
Cramp & Sons Ship & Engine Bldg Co., Philadelphia
Dayton-Dowd Co., Quincy, Ill.
Goulds Mfg Co., Seneca Falls, N. Y.
Kingsford Foundry & Machine Co., Oswego, N. Y.
Lawrence Machine Co., Lawrence, Mass.
Lea-Courtenay Co., Newark, N. J.
Midwest Engine Co., Indianapolis, Ind.
Morris Machine Works, Baldwinsville, Pa.
Poole Engineering & Machine Co., Baltimore
Twinvolute Pump & Mfg Co., Newark, N. J.
Wheeler Condenser & Engineering Co., Carteret, N. J.,
see p. 23

Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Centrifugal, Multistage
(Suitable for Boiler Feed and Other High Pressure Service)

Alberger Pump & Condenser Co., 140 Cedar St., New York
Allis-Chalmers Mfg Co., Milwaukee, Wis.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Works, 11 Broadway, New York
Dayton-Dowd Co., Quincy, Ill.
De Laval Steam Turbine Co., Trenton, N. J., see pp.
106 & 107
Goulds Mfg Co., Seneca Falls, N. Y.
Kingsford Foundry Co., Machine Works, Oswego, N. Y.
Lawrence Machine Co., Lawrence, Mass.
Lea-Courtenay Co., Newark, N. J.
Morris Machine Works, Baldwinsville, Pa.
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Galley, Hand

Advance Pump & Compressor Co., Battle Creek, Mich.
Barnes Manufacturing Co., Mansfield, Ohio
Boyle Dayton Co., The, 52d & Santa Fe Av., Los Angeles
Buffalo Steam Pump Co., 490 Broadway, Buffalo
Carter Co., Ralph B., 152 Chambers St., New York
Deming Co., The, Salem, Ohio
Fairbanks, Morse & Co., Chicago
Ft. Wayne Engineering & Mfg Co., Fort Wayne, Ind.
Goulds Manufacturing Co., The, Seneca Falls, N. Y.
Kruecke Bros. Mfg Co., 517 Park St., Milwaukee, Wis.
McDonald Mfg Co., A. Y., Dubuque, Iowa
Red Jacket Manufacturing Co., Davenport, Iowa
Rumsey Pump & Machine Co., 75 Warren St., New York
Sands & Son Co., A. B., Inc., 20 Vesey St., New York
Trimont Rotary Power Co., Whiting Av., East Dedham,
Mass.

Weinman Pump Manufacturing Co., Columbus, Ohio

PUMPS, Handy Billy

Barnes Manufacturing Co., The, Mansfield, Ohio
Buffalo Steam Pump Co., Buffalo, N. Y.
Deming Co., The, Salem, Ohio
Fairbanks, Morse & Co., Chicago
Gould's Manufacturing Co., Seneca Falls, N. Y.
Humphrey's Manufacturing Co., The, Mansfield, Ohio
Kruecke Bros. Mfg Co., 513 Park St., Milwaukee, Wis.
Myers & Bros., T. E., Ashland, Ohio
Rumsey Pump & Machine Co., 75 Warren St., New York
Taber Pump Co., 297 Elm St., Buffalo
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Hydraulic

Dean Bros. Steam Pump Works, Indianapolis, Ind.
Dow Pump & Diesel Engine Co., Oakland, Cal.
Fairbanks, Morse & Co., Chicago
National Transit Pump & Machine Co., Oil City, Pa.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Portable, Electrical

Carpenter Co., Ralph B., 152 Chambers St., New York
Dayton-Dowd Co., 90 West St., New York
Douglas, W. & B., Grant Central Terminal, New York
Fort Wayne Engr. & Mfg Co., Fort Wayne, Ind.
Gasoline Eng. Equip. Co., 347 Madison Av., New York
General Electric Co., Schenectady, N. Y., see pp. 36-41
Gould's Manufacturing Co., The, Seneca Falls, N. Y.
Hartford Machine Screw Co., Hartford, Conn.
Kruecke Bros. Mfg Co., 513 Park St., Milwaukee, Wis.
Midwest Engine Co., Anderson, Ind.
Quimby, Inc., Wm. S., 209 Parkhurst St., Newark, N. J.
Scranton Pump Co., Scranton, Pa.
Smith Co., T. L., 1125 32d St., Milwaukee, Wis.
Ward Pump Co., Rockford, Ill.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating, Air, Horizontal, Double Acting

American Steam Pump Co., Battle Creek, Mich.
Cameron Steam Pump Works, 11 Broadway, New York
Davidson Co., M. T., 154 Nassau St., New York
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Dow Pump & Diesel Engine Co., Oakland, Cal.
Marsh Pump Co., Battle Creek, Mich.
National Transit Pump & Machine Co., Oil City, Pa.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating Air, Twin Beam, Vertical, Single Acting

Davidson Co., M. T., 154 Nassau St., New York
Dow Pump & Diesel Engine Co., Oakland, Cal.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating Air, Twinplex, Vertical Single Acting

Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating Air, Vertical, Single Acting, Suction Valveless (Suitable for Direct Connected or Independent Air Pump)

Davidson Co., M. T., 154 Nassau St., New York
Dow Pump & Diesel Engine Co., Oakland, Cal.
Warren Steam Pump Co., Warren, Mass.
Wheeler Condenser & Engineering Co., Carteret, N. J.,
see p. 23
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating, Horizontal, Combined Air & Circulating (Suitable for Auxiliary Condenser Service)

American Steam Pump Co., Battle Creek, Mich.
Cameron Steam Pump Works, 11 Broadway, New York
Davidson Co., M. T., 154 Nassau St., New York
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Dow Pump & Diesel Engine Co., Oakland, Cal.
Marsh Pump Co., Battle Creek, Mich.
National Transit Pump & Machine Co., Oil City, Pa.
Union Steam Pump Co., Battle Creek, Mich.
Warren Steam Pump Co., Warren, Mass.
Wheeler Condenser & Engineering Co., Carteret, N. J.,
see p. 23

Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating, Horizontal Duplex, Cargo Oil (Suitable for Pumping Heavy Oil)

National Transit Pump & Machine Co., Oil City, Pa.
Wilson-Snyder Manufacturing Co., Pittsburgh
Worthington Pump & Machinery Corp., 115 Broadway,
New York, see pp. 74-81

PUMPS, Reciprocating, Horizontal or Vertical, Duplex, Heavy Service (Suitable for Boiler Feed, Fire Service, Ash Ejector, Fuel Oil Feed, etc.)

STERLING-COOPER CO., NEW YORK

PUMPS, Reciprocating Horizontal or Vertical, Duplex, Light Pressure (Suitable for Bilge or Drainage, Ballast, Fuel Oil Transfer, Lubricating Oil, Sanitary & Fresh Water Service, Auxiliary Circulating Services)

Dean Bros. Steam Pump Works, Indianapolis, Ind.
Dow Pump & Diesel Engine Co., Oakland, Cal.
Fairbanks, Morse & Co., Chicago
National Transit Pump & Machine Co., Oil City, Pa.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUMPS, Reciprocating, Horizontal or Vertical, Single, Heavy Pressure (Suitable for Boiler Feed, Fire Service, Ash Ejector, Fuel Oil Feed, etc.)

PUMPS, Reciprocating, Horizontal or Vertical, Single, Light Pressure (Suitable for Bilge & Drainage, Ballast, Fuel Oil Transfer, Lubricating Oil, Sanitary & Fresh Water Service, Auxiliary Circulating Services)

American Steam Pump Co., Battle Creek, Mich.
Cameron Steam Pump Works, 11 Broadway, New York
Davidson Co., M. T., 154 Nassau St., New York
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Dow Pump & Diesel Engine Co., Oakland, Cal.
McGowan Co., John H., Cincinnati
Marsh Pump Co., Battle Creek, Mich.
National Transit Pump & Machine Co., Oil City, Pa.
Union Steam Pump Co., Battle Creek, Mich.
Warren Steam Pump Co., Warren, Mass.
Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUMPS, Rotary Brine

Viking Pump Co., Cedar Falls, Iowa

PUMPS, Rotary, Force

Viking Pump Co., Cedar Falls, Iowa

PUMPS, Vacuum, Dry

Alberger Pump & Condenser Co., 140 Cedar St., New York
Wheeler Condenser & Engineering Co., Carteret, N. J., see p. 23

Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81

PUNCHES, Backing Out

Channon Mfg Co., Jas. H., Chicago
Cleveland Punch & Shear Works, Cleveland
Cleveland Steel Tool Co., Cleveland
Kemp Machine Co., Baltimore
Lundstrom Tool Die Gage Co., Bridgeport, Conn.
Manning, Maxwell & Moore, 119 W. 40th St., New York
Modern Tool & Machine Works, Newark, N. J.

PUNCHES, Centre

Carver Tool Works, Spring Valley, N. Y.
Cincinnati Tool Co., Norwood, Cincinnati
Flint & Chester, 2 South St., New York
Missouri Pressed Steel Mfg Co., St. Louis, Mo.
Nock Co., Inc., Geo. W., 1304 Race St., Philadelphia
Star Bit & Tool Co., Rockford, Ill.
Torrington Co., The (Excelsior Plant), Torrington, Conn.
Vulcan Tool Co., Quincy, Mass.
West Haven Mfg Co., West Haven, Mass.
Wiebusch & Hilger, 106 Lafayette St., New York

PUNCHES & DIES

Boucher Mfg. Co., The H. E., 150 Lafayette St., New York, see p. 60
Cleveland Punch & Shear Works, Cleveland
Marchant Co., Geo. F., Chicago
Trojan Tool Corp., 511 W. 42d St., New York

PUNCHES, Gang

Long & Allstatter Co., The, Hamilton, Ohio
Niagara Machine & Tool Works, Buffalo
Niles-Bement-Ponds Co., 111 Broadway, New York
Ohl & Co., Geo. A., 159 Oraton St., Newark, N. J.
Southwark Foundry & Machine Co., Philadelphia

PUNCHES, Hand, Metal

Alvord Reamer & Tool Co., Millersburg, Pa.
Armstrong-Blum Mfg Co., Chicago
Whitney Metal Tool Co., Rockford, Ill.

PUNCHING & SHEARING MACHINES

Beatty Machine & Mfg Co., Hammond, Ind.
Bersch & Co., Cambridge City, Ind.
Cleveland Punch & Shear Works, Cleveland
Covington Machine Co., Covington, Va.
Garrison Foundry Co., A., Pittsburgh
Hendley & Whittemore Co., Beloit, Wis.
Herbert's Machinery & Supply Co., San Francisco
Hillis & Jones, Wilmington, Del.
Ironton Punch & Shear Co., Ironton, Ohio
Kling Bros., Engr. Wks., Chicago
Leffler & Co., Chas., 71 Clymer St., Brooklyn, N. Y.
Lewis Foundry & Machine Co., Pittsburgh
Long & Allstatter Co., The, Hamilton, Ohio
Massillon Foundry & Machine Co., Massillon, Ohio
New Doty Mfg Co., Janesville, Wis.
Niagara Machine & Tool Works, Buffalo
Niles-Bement-Ponds Co., 111 Broadway, New York
Norborn Engineering Co., The, Darby, Pa.
Pawtucket Mfg Co., Pawtucket, R. I.
Quick Work Co., The, St. Mary's, Ohio
Royersford Fdry & Mach Co., Royersford, Pa.
Ryerson & Son, Jos. T., Chicago
Toledo Mach. & Tool Co., Toledo, Ohio
Ward Tool & Forging Co., La Trobe, Pa.
Wickes Bros., Saginaw, Mich.

PUNCHING & SPACING MACHINES

Long & Allstatter Co., The, Hamilton, Ohio
Thomas Spacing Machine Co., Pittsburgh

PUSH BUTTONS (See Buttons, Push)

PYROMETERS

Bristol Co., The, Waterbury, Conn.
Brown Instrument Co., Philadelphia
Engelhard, Chas., 30 Church St., New York
Hoskins Mfg Co., Detroit, Mich.
Leeds & Northrup, Philadelphia
Shaeffer & Budenberg Mfg Co., The, Brooklyn, N. Y.
Taylor Instrument Cos., Rochester, N. Y.
Thwing Instrument Co., Philadelphia

R

RACKS, Broiler or Pan

Union Steel Products Co., Ltd., Albion, Mich., see p. 2

RADIAL DRILLS (See Drills, Radial)

RADIATORS, Steam & Hot Water

American Radiator Co., Chicago
Clow & Sons, James B., Chicago
Minnesota Radiator Co., Duluth, Minn.
Pierce, Butler & Pierce Mfg Corp., 437 E. 162d St., New York
Smith Co., H. B., Westfield, Mass.
United States Radiator Corp., Detroit, Mich.

RADIATORS, Electric (See Coils, Heating, Electric)

RADIO SETS & EQUIPMENT

Cutting & Washington Radio Corp., 6 & 8 W. 48th St., New York, see p. 82
Halcum Radio Co., San Francisco
Kilbourne & Clark Mfg Co., Seattle, Wash.
Radio Corporation of America, 233 Broadway, New York, see p. 83
Simon, Emil J., 217 Broadway, New York

RAFTS, Life

American Balsa Co., Inc., 50 E. 40th St., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
Gray & Sons, Peter, Boston, Mass.
Kahnweiler's Sons, David, 260 Front St., New York
Masten Co., Inc., G. H., 38 E. 9th St., New York
Standard Textile Produce Co., 320 Broadway, New York
Steward Davit & Equipment Co., 17 Battery Pl., New York
Upson-Walton Co., 1310 W. 11 St., Cleveland

STERLING-COOPER CO., NEW YORK

RAILINGS, Iron & Brass

Beere, Geo. W., 294 Taaffe Pl., Brooklyn, N. Y.
 Estey Wire Works Co., 34 Cliff St., New York
 Gould-Mercereau Co., 52 W. 38th St., New York
 Guerin, P. E., 21 Jane St., New York
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Watson, Frye & Co., Ltd., Bath, Me.
 Wickwire Spencer Steel Corp., Worcester, Mass.

RAMMERS, Foundry

Chicago Pneumatic Tool Co., 6 E. 44th St., New York
 Cleveland Pneumatic Tool Co., Cleveland
 Keller Pneumatic Tool Co., Grand Haven, Mich.
 Ingersoll-Rand Co., 11 Broadway, New York
 Independent Pneumatic Tool Co., Chicago
 Oldham & Son Co., George, Frankford, Philadelphia, see p. 94

RANGES, Galley (See Galley Ranges)**RASPS (See Files)****RATCHETS (See Drills, Breast)****RATLINE, Hemp**

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Pacific Net & Twine Co., Seattle, Wash.
 Whitlock Cordage Co., 46 South St., New York, see p. 27

RAVENS, Cotton, Canvas

Gary & Sons, Jas., S., Baltimore
 Parker Wilder & Co., 4 Winthrop Sq., Boston
 Turner Co., J. Spencer, 56 Worth St., New York
 Wellington Sears Co., 93 Franklin St., Boston
 Woodward Baldwin & Co., 43 Worth St., New York

RAVENS, Flax

Hudson & Boas, 21 E. 17th St., New York
 Parker Wilder & Co., 4 Winthrop Sq., Boston

REAMER HOLDERS

Colburn Machine Tool Co., Franklin, Pa.
 Gisholt Machine Co., Madison, Wis.
 Victor Tool Co., Inc., Waynesboro, Pa.

REAMERS, Various

Alvord Reamer & Tool Co., Millersburg, Pa.
 American Mach. Products Co., Detroit, Mich.
 Brubaker & Bros., W. L., Millersburg, Pa.
 Buckeye Twist Drill Co., The, Alliance, Ohio
 Butterfield & Co. (Division U. T. D. Co.), Derby Line, Vt.
 Carlin Steel Products Co., Philadelphia
 Cleveland Twist Drill Co., Cleveland
 Conant & Donelson Co. (Spiral), Conway, Mass.
 Cutter & Woods Supply Co. (Expansion), Boston
 Detroit Twist Drill Co., Detroit, Mich.
 Fastfeed Drill & Tool Corp., Toledo, Ohio
 Gisholt Machine Co., Madison, Wis.
 Greenfield Tap & Die Corp., Greenfield, Mass.
 Kelly Reamer Co. (Adjustable), Cleveland
 Latrobe Tool Co. (Bridge, High Speed), Latrobe, Pa.
 Lincoln Twist Drill Co., Taunton, Mass.
 Mergenthaler Co. (Adjustable), Baltimore
 Modern Tool & Machine Works, Inc., Newark, N. J.
 National Tool Co., The, Cleveland
 National Twist Drill & Tool Co., Detroit, Mich.
 Perfection Machine Works, Inc., Buffalo
 Polk & Son, A. J., Millersburg, Pa.
 Pratt & Whitney, 111 Broadway, New York
 Proctor Co., Inc., S. Eugene, 158 State St., Boston
 Reiff & Nestor, Lykens, Pa.
 Rich Tool Co., Chicago
 Trojan Tool Corp., 511 W. 42d St., New York
 Wells & Son Co., F. E., Greenfield, Mass.
 Whitaker Mfg Co., 409 S. Green St., Chicago
 Whitman & Barnes Mfg Co., Akron, Ohio

RECEIVERS, Air

Dillon Steam Boiler Works, D. M., Fitchburg, Mass.
 Ingersoll-Rand Co., 111 Broadway, New York
 Koven & Bro., L. O., Jersey City, N. J.
 Llewellyn Iron Works, Los Angeles
 New York Central Iron Wks Co., Inc., Hagerstown, Md.
 Phoenix Iron Works, Meadville, Pa.

Riverside Boiler Works, Cambridge, Mass.
 Scaife & Sons Co., Wm. B., Oakmount, Pa.
 Worthington Pump & Machinery Corp., 115 Broadway, New York, see pp. 74-81
 (See also Air Banks)

RECORDERS, Depth (See Depth Recorders)**RECORDERS, Time**

Brown Instrument Co., Philadelphia
 Bundy Time Recording Co., W. H., 135 Fifth Av., New York
 International Time Recorder Co., 225 Fifth Av., New York
 Simplex Time Recorder Co., 135 Fifth Av., New York
 Stromberg Electric Mfg Co., 8 W. 40th St., New York
 Syracuse Time Recording Co., Syracuse, N. Y.

RECEPTACLES & SWITCHES, Single & Double Pole (See Receptacles, Water Tight)**RECEPTACLES, Wall Type, Mica**

Central Electric Co., Chicago
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35
 Hart & Hegeman Mfg Co., Hartford, Conn.
 Johns-Pratt Co., The, Hartford, Conn.
 Metropolitan Elec. Mfg Co., Long Island City, N. Y.
 Wetmore-Savage Co., 76 Pearl St., Boston

RECEPTACLES, Water Tight

Arnessen Electric Co., 109 Broad St., New York
 Benjamin Electric Mfg Co., Chicago
 Bryant Electric Co., Bridgeport, Conn.
 Cutler-Hammer Mfg Co., 50 Church St., New York, see p. 35

Garfield Mfg Co., Garfield, N. J.
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Hart & Hegeman Mfg Co., Hartford, Conn.
 Lovell & Co., F. H., Arlington, N. J.
 Marine Electric Co., San Francisco
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Nepage, McKinney Co., Portland, Ore.
 Royal-Eastern Elec. Sup. Co., 114 W. 27th St., New York
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43

RECIPROCATING ENGINES

Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.
 Ames Shipbuilding & Drydock Co., Seattle, Wash.
 Badenhause Co., 1425 Chestnut St., Philadelphia
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Consolidated Shipbuilding Corp., Morris Hts., New York
 Cramp & Sons Ship & Engine Bldg. Co., The Wm., Philadelphia
 Downey Shipbuilding Corp., Arlington, Staten Island, N. Y.
 Ellicott Machine Corp., Baltimore
 Fletcher Co., W. & A., Hoboken, N. J.
 Great Lakes Engineering Works, 5 Nassau St., New York
 Hallidie Co., Spokane, Wash.
 Hardie-Tyne Manufacturing Co., Birmingham, Ala.
 Hooven, Owens, Rentschler Co., The, Hamilton, Ohio, see pp. 84-91
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93

Llewellyn Iron Works, Los Angeles
 Los Angeles Shipbldg. & D. D. Co., San Pedro, Cal.
 McDougall-Duluth Shipbuilding Co., Duluth, Minn.
 Main Iron Works, San Francisco
 Marine Iron Works, Chicago
 Morris Machine Works, Baldwinville, Pa.
 Pacific Marine Iron Works, Portland, Ore.
 Seattle Machine Works, Seattle, Wash.
 Sumner Iron Works, Everett, Wash.
 Sun Shipbuilding Co., Chester, Pa.
 Tickle Engrg Wks, A., 26 Delevan St., Brooklyn, N. Y.
 Todd Shipyards Corp., 15 Whitehall St., New York
 Toledo Shipbuilding Co., The, Toledo, Ohio
 Trout Co., H. G., Buffalo
 Vulcan Iron Works, Inc., Jersey City, N. J.

RECTIFIERS

General Electric Co., Schenectady, N. Y., see pp. 36-41
 Wagner Electric Mfg Co., St. Louis, Mo.
 Westinghouse Electric & Mfg Co., Pittsburgh, Pa.

STERLING-COOPER CO., NEW YORK

RED LEAD (See Paint, Subhead)**REDUCING VALVES (See Valves, Reducing)****REDUCTION GEARS, Auxiliary Machinery**

General Electric Co., Schenectady, N. Y., see pp. 36-41

Kerr Turbine Co., Wellsville, N. Y.

Moore Steam Turbine Corp., Wellsville, N. Y.

Parsons Steam Turbine Co., Ltd., The, 2 Rector St., New York, see p. 105

Poole Engineering & Machine Co., Baltimore

Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108 & 109

Terry Steam Turbine Co., The, Hartford, Conn., see p. 110

Westinghouse Electric & Mfg Co., Pittsburgh

REDUCTION GEARS, Propulsion, Main

De Laval Steam Turbine Co., Trenton, N. J., see pp. 106 & 107

Falk Co., The, Milwaukee

General Electric Co., Schenectady, N. Y., see pp. 36-41

Kerr Turbine Co., Wellsville, N. Y.

Parsons Steam Turbine Co., Ltd., The, 2 Rector St., New York, see p. 105

Poole Engineering & Machine Co., Baltimore

Westinghouse Electric & Mfg Co., Pittsburgh

REDWOOD

Central Timber Export Co., Inc., 115 Broadway, New York

Cross, Austin & Ireland Lbr. Co., 1246 Grant St., Bklyn.,

Douglass, George, 317 West St., New York

Dutton Lbr. Corp., A. C., G. C. T., New York

James & Abbott Co., 155 Milk St., Boston

Johnson Bros., 45 Classon Av., Brooklyn, N. Y.

Kalt Lumber Co., 320 E. 64th St., New York

National Timber Co., Mobile, Ala.

Pacific Lbr. Co. of Ill. (Car Loads), 522 Fifth Av., New York

Saari-Tully Lumber Co., Portland, Ore.

Stevens-Eaton Co., 1 Madison Av., New York

Van Arsdale-Harris Lumber Co., San Francisco

Wyatt Prock Lumber, Philadelphia

REELS, Hawser

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100

Central Foundry Co., The, 90 West St., New York

Helsner Machine Works, Inc., Portland, Ore.

Steward Davit & Equip Corp., 17 Battery Pl., New York

Thatcher Propeller & Foundry Co., Albany, N. Y.

Wirt & Knox Mfg Co., Philadelphia

REELS, Hose

American-LaFrance Fire Co., Elmira, N. Y.

Cliff & Guibert Co., 460 W. Broadway, New York

Hayward & Co., S. F., 250 W. 54th St., New York

Whitehurst Mfg Corp., R. W., Cook Av. & Smallwood St., Norfolk, Va.

Wirt & Knox Mfg Co., 22 N. 4th St., Philadelphia

Woodhouse Mfg Co., 64 W. Broadway, New York

REFRIGERATING MACHINERY, Ammonia

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95

Frick Company, Waynesboro, Pa., see p. 97

York Manufacturing Co., York, Pa., see p. 98

REFRIGERATING MACHINERY, CO₂

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95

Frick Company, Waynesboro, Pa., see p. 97

York Manufacturing Co., York, Pa., see p. 98

REFRIGERATING MACHINERY, Ethyl Chloride

Clothel Refrigerating Co., 61 Broadway, New York, see p. 96

REFRIGERATING MACHINERY, Miscellaneous

Automatic Refrigerating Co., Hartford, Conn.

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95

Clothel Refrigerating Co., 61 Broadway, New York, see p. 96

Frick Company, Waynesboro, Pa., see p. 97

Frigid Engineering Co., Vancouver, Wash.

Gay & Son, C. M., Los Angeles

Harris Ice Machine Works, Portland, Ore.

Jarvis Manufacturing Co., Inc., T. P., San Francisco

Johns-Manville Co., H. W., Madison Av. & 41st St., New York

Kroeschell Bros. Ice Machine Co., Chicago

Poole Engineering & Machine Co., Baltimore

Remington Machine Co., Wilmington, Del.

Roelke, H. B., 41 Maiden Lane, New York

Vulcan Iron Works, San Francisco

York Manufacturing Co., York, Pa., see p. 98

REINFORCING STEEL (See Steel, Subhead)**RELEASING GEAR, Boat (See Boat Releasing Gear)****RELIEF VALVES (See Valves, Subhead)****REPAIRS**

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100

Southland Steamship Co., Savannah, Ga., see p. 101

United Marine Contracting Corp., 15 Whitehall St., New York, see p. 128

(See also Shipbuilding & Repair Section)

RETARDERS, Boiler

Howden & Co. of America, Inc., Wellsville, N. Y.

Reid & Co., John, 30 Church St., New York

REVOLUTION COUNTERS (See Counters)**RHEOSTATS**

Allen-Bradley Co., Milwaukee, Wis.

Cutler-Hammer Mfg. Co., 50 Church St., New York, see p. 35

Electric Controller & Mfg Co., Cleveland

General Electric Co., Schenectady, N. Y., see pp. 36-41

Hommedieu & Son, C. L. (Pleating Only), 4521 Ogden Av., Chicago

Ward, Leonard Electric Co., Mt. Vernon, N. Y.

(Consult Equipment Mfg. for Which Rheostat Is Needed)

RIGGING & TURNING MACHINES

Alliance Machine Co., Alliance, Ohio

Bethlehem Steel Co., Bethlehem, Pa.

Brown Hoisting & Mach. Co., Cleveland

Cleveland Crane & Eng. Co., Wickliffe, Ohio

Garrison Fdry Co., A., Pittsburgh

Industrial Works, Bay City, Mich.

Link-Belt Co., Philadelphia

Mesta Machine Co., Pittsburgh

Morgan Engineering Co., Alliance, Ohio

Niles-Bement-Pond Co., 111 Broadway, New York

United Engineering & Fdry Co., Pittsburgh

Wern Machy & Engineering Co., 30 Church St., New York

Wood & Co., R. D., Philadelphia

RIVET CUTTERS

Rice Manufacturing Co., Indianapolis, Ind.

Rivet Cutting Gun Co., Cincinnati

RIVET HEATING FORGES (See Forges, Rivet Heating)**RIVET HEATING FURNACES, Electric**

American Car & Foundry Co., 165 Broadway, New York, see p. 99

General Electric Co., Schenectady, N. Y., see pp. 36-41

RIVET HOLDERS-ON (See Also Holders-On)

Oldham & Son Co., George, Frankford, Philadelphia, see p. 94

RIVET SETS (See Dies, Riveting)**RIVETERS, Jam**

Oldham & Son Co., George, Frankford, Philadelphia, see p. 94

RIVETERS, Pneumatic, Hand

Chicago Pneumatic Tool Co., 6 E. 44th St., New York

Independent Pneumatic Tool Co., Chicago

Ingersoll-Rand Co., 11 Broadway, New York

Keller Pneumatic Tool Co., Grand Haven, Mich.

Oldham & Son Co., George, Frankford, Philadelphia, see p. 94

Pittsburgh Pneumatic Co., The, Canton, Ohio

STERLING-COOPER CO., NEW YORK

RIVETERS, Power

Allen & Co., John F., 370 Gerard Av., New York
 Baird Pneumatic Tool Co., Kansas City, Mo.
 Chambersburg Engineering Co., Chambersburg, Pa.
 Cleveland Punch & Shear Wks Co., Cleveland
 Hilles & Jones, Wilmington, Del.
 Morgan Engineering Co., Alliance, Ohio
 Niles-Bement-Ponds Co., 111 Broadway, New York
 Ryerson & Son, Jos. T., Chicago
 Southwark Foundry & Machine Co., Philadelphia

RIVETS, Brass & Copper, Without Burrs

Atlas Bolt & Screw Co., 1100 Ivanhoe Rd., N. E., Cleveland
 Burns & Bassick Co., Bridgeport, Conn.
 Butts & Ordway, 32 Purchase St., Boston
 Equipoise Rivet Co., Waterbury, Conn.
 Hassall, Inc., John, 4020 Oakland St., Brooklyn, N. Y.
 Milwaukee Tack Co., (3/16" & Less), Milwaukee, Wis.
 Nelson Rivet Co., Taunton, Mass.
 Plymouth Mills, Plymouth, Mass.
 Progressive Mfg Co., Torrington, Conn.
 Upham & Bro., V. B., 30 Hudson Av., Brooklyn, N. Y.
 Waterbury Mfg Co., Waterbury, Conn.
 (See also Rivets & Burrs, Copper)

RIVETS, Steel, Boiler**Hull**

Atlas Bolt & Screw Co., 1100 Ivanhoe Rd., N. E., Cleveland
 Bethlehem Steel Co., Bethlehem, Pa.
 Carlin, Anthony, Cleveland
 Champion Rivet Co., The, Cleveland
 Columbus Bolt Wks Co. (7/16" & Less), Columbus, Ohio
 Falls Rivet Co., Kent, Ohio
 Garland Mfg Co., 7/16" & smaller), W. Pittsburgh, Pa.
 Gaskell & Son, Wm., 59 Freeman St., Brooklyn, N. Y.
 Harvey & Co., Arthur C., Boston
 Hoopes & Townsend, 1330 Buttonwood St., Philadelphia
 Illinois Steel Co., 208 S. La Salle St., Chicago
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Liberty Steel Products Co., 233 Broadway, New York
 Michelman & Gordon Iron Works, 267 Wyckoff Av., Brooklyn, N. Y.
 Michigan Bolt & Nut Works, Detroit, Mich.
 National Nut & Bolt Co., 62d St. & A. V. R. R., Pittsburgh
 O'Leary & Son Co., A. J., Chicago
 Oliver Iron & Steel Co., Pittsburgh
 Pittsburgh Rivet Co., (1/2" & up), Pittsburgh
 Pittsburgh Screw & Bolt Co., Pittsburgh
 Plymouth Mills, Plymouth, Mass.
 Pratt, Wm. E., 35 W. Lake St., Chicago
 Reed & Prince Mfg Co., Worcester, Mass.
 Russell, Burdsall & Ward Bolt & Nut Co., Portchester, N. Y.
 Ryerson & Son, Jos. T., Chicago
 Scully Steel & Iron Co., Chicago
 Severance Mfg Co., S., Glassport, Pa.
 Upson Nut Co., Cleveland

RIVETS, Steel, Tinned

Acklin Stamping Co., 1644 Dorn St., Toledo, Ohio
 Bergen Bros. Co., 229 Arch St., Philadelphia
 Butts & Ordway Co., 32 Purchase St., Boston
 Equipoise Rivet Co., Waterbury, Conn.
 Falk Rivet Co., Kent, Ohio
 Lyon Conklin Co., Inc., Baltimore
 Merchant & Evans, Philadelphia
 Nelson Rivet Co., Taunton, Mass.
 Ohio Bolt & Nut Co., Berea, Ohio
 Robertson Steel & Iron Co., W. F., Cincinnati
 Surpluss, Dunn & Co., 74 Murray St., New York

RIVETS AND BURRS, Copper

American Brass Co., Waterbury, Conn.
 Atlas Tack Co., Fairhaven, Mass.
 Blake & Johnson Co., Waterbury, Conn.
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Clendenin, Jas., 220 Broadway, New York
 Falls Rivet Co., Kent, Ohio
 Grammes & Sons, L. F., Allentown, Pa.
 Hibbard, Spencer Bartlett & Co., Chicago
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York

Merchant & Evans, Philadelphia

Montgomery & Co., Inc., 105 Fulton St., New York
 Novelty Mfg Co., Waterbury, Conn.
 Pheall Mfg Co., 5700 W. 12th St., Chicago
 Reed & Prentice Mfg Co., Worcester, Mass.
 Sargent & Co., 94 Centre St., New York
 Simmons Hardware Co., St. Louis, Mo.
 Steele & Johnson Mfg Co., Waterbury, Conn.
 Surpluss, Dunn & Co., 74 Murray St., New York
 Taunton Rivet Works, Taunton, Mass.
 Trumpbour, Whitehead Brass & Copper Co., 309 Canal St., New York

ROCKETS, Night Signalling

Pain, Henry J., 18 Park Pl., New York

RODS (See Specific Headings)**ROLLER BEARINGS (See Bearings, Roller)****ROLLS, Bending & Straightening (See Bending & Straightening Machines, Also Bending Rolls, Plate)****ROPE, Hemp**

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbian Cordage Co., Auburn, N. Y.
 Cupples Cordage Co., 390 3d Av., Brooklyn, N. Y.
 Granger & Co., Inc., Geo. B., 66 Broadway, New York
 Jackson & Sons Co., Thos., Reading, Pa.
 Kelly Co., The R. A., Xenia, Ohio
 Macwhyte Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle, Wash
 Plymouth Cordage Co., N. Plymouth, Mass.
 Portland Cordage Co., Portland, Ore.
 Ranschberger & Co., John, Milwaukee, Wis.
 Rinek Cordage Co., Easton, Pa.
 Rugg Co., E. T., Newark, Ohio
 Tubbs Cordage Co., San Francisco
 Wall Rope Works of N. Y., 48 South St., New York
 Waterbury Co., 63 Park Row, New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27

ROPE, Manila (See Also Rope, Hemp)

Whitlock Cordage Co., 46 South St., New York, see p. 27

ROPE, Wire, Marline Covered

American Steel & Wire Co., Chicago
 Roebling's Sons Co., John A., Trenton, N. J.
 Waterbury Co., 63 Park Row, New York
 Woodward Wight & Co., New Orleans, La.

ROPE, Wire, Phosphor Bronze

American Steel & Wire Co., Chicago
 Durable Wire Rope Co., Boston
 Macwhyte Co., Kenosha, Wis.
 Roebling & Sons Co., J. A., Trenton, N. J.
 Turner & Stanton Co., Norwich, Conn.
 Wickwire Spencer Steel Corp., Worcester, Mass.

ROPE, Wire, Steel

American Steel & Wire Co., Chicago
 Astell & Co., John B., 90 W. Broadway, New York
 Black Steel & Wire Co., Kansas City, Mo.
 Broderick & Bascon Rope Co., St. Louis, Mo.
 Durable Wire Rope Co., Boston
 Granger & Co., Inc., Geo. B., 66 Broadway, New York
 Hazard Mfg Co., Wilkes-Barre, Pa.
 Leschen & Sons Rope Co., A., St. Louis, Mo.
 Macwhyte Co., Kenosha, Wis.
 Moon Co., Geo. C., Garwood, N. J.
 Roebling & Sons Co., J. A., Trenton, N. J.
 Upson-Walton Co. of N. Y., 291 Broadway, New York
 Waterbury Co., 63 Park Row, New York
 Wickwire Spencer Steel Corp., Worcester, Mass.
 Williamsport Wire Rope Co., Williamsport, Pa.

ROPE DRESSING, Wire

Texas Co., The, 17 Battery Pl., New York, see pp. 61-64

ROPE FITTINGS, Wire (See Wire Rope Fittings)**ROPES, Yoke, Cotton Line (See Cotton Line)****ROPES, Yoke, Hemp**

Whitlock Cordage Co., 46 South St., New York, see p. 27

STERLING-COOPER CO., NEW YORK

ROTTEN & RUBBING STONE

Rhodes & Co., James H., 115 Fulton St., New York

RUBBER, Hard, Rods, Sheets, Tubes

American Hard Rubber Co., 11 Mercer St., New York
 India Rubber Co., New Brunswick, N. J.
 Luzerne Rubber Co., Trenton, N. J.
 Mikesell Bros. Co., 176 N. La Salle St., Chicago
 Miller-Reese-Hutchinson, Inc., Orange, N. J.
 Shaw Insulator Co., 5 Kirk Pl., Newark, N. J.
 Spaulding & Sons Co., J., 484 Broome St., New York
 Stokes Rubber Co., Jas., Trenton, N. J.
 Wetmore-Savage Co., 76 Pearl St., Boston

RUBBER GOODS

Goodall Rubber Co., Inc., Philadelphia, see p. 54
 New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 United States Rubber Co., 1790 Broadway, New York, see p. 57

RUBBER MATTING (See Matting, Rubber)**RUBBER TILING**

New York Belting & Packing Co., 91 Chambers St., New York, see p. 55
 United States Rubber Co., 1790 Broadway, New York, see p. 57

RUDDER POSTS, STOCKS & ARMS

Bethlehem Shipbuilding Corp. Ltd., Bethlehem, Pa., see p. 100
 Cramp & Sons Ship & Engine Building Co., The Wm., Philadelphia
 Erie Forge Co., Erie, Pa.
 Hardie-Tynes Mfg Co., Birmingham, Ala.
 Heppenstall Forge & Knife Co.,
 Mesta Machine Co., Pittsburgh, Pa.
 Pacific Construction & Engrg Co., Seattle, Wash.
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Philadelphia, see p. 18
 Pollak Steel Co., The, Cincinnati
 Todd Shipyards Corp, 15 Whitehall St., New York
 Wheeling Mold & Foundry Co., Wheeling, W. Va.

RUGS

Sloane, W. & J., 5th Av. & 47th St., New York
 Wanamaker, Jno., Philadelphia

RULERS, Adjustable Curve & Parallel(See *Drawing Room Equipment*)**RULES, Steel**

Almond Mfg Co., T. R., Ashburnham, Mass.
 Athol Machine Co., Athol, Mass.
 Brown & Sharpe, Providence, R. I.
 Disston & Sons, Henry, Philadelphia
 Goodell-Pratt Co., Greenfield, Mass.
 Johnson Rule Mfg Co., 565 Wash. Blvd., Chicago
 Lufkin Rule Co., The, Saginaw, Mich.
 Starrett Co., L. S., Athol, Mass.
 Wellman Pattern Supply Co., Cleveland

RUNNING LIGHTS (See Lights)**S****SAILMAKERS (See Also Canvas Goods)**

Bottger Bros. & Co., Brooklyn, N. Y.
 Burrows, Inc., Geo. R., Philadelphia
 Cousens & Pratt, 274 Summer St., Boston
 Daniels, Inc., C. R., 79 Beekman St., New York
 Greene Co., C. W., Tampa, Fla.
 Hogshire Son & Co., Inc., E., Norfolk, Va.
 Jackson & Co., Irwin, Mobile, Ala.
 Pacific Tent & Awning Co., Portland, Ore.

SALINOMETERS

General Scientific Equipment Co., 2718 N. Lehigh Av., Philadelphia

Mayer & Bros., Jos., Seattle, Wash.

Moeller, A. E., 263 Sumpter St., Brooklyn, N. Y.
 New York Thermometer Co., 36 E. 23d St., New York
 Pinkham & Smith, 292 Boylston St., Boston
 Precision Thermometer & Inst. Co., 1434 Brandywine St., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Rieker Instr. Co., 1919 Fairmount Av., Philadelphia
 Schneider Bros. Instrument Co., 352 Palisade Av., Jersey City, N. J.
 Standard Scientific Co., 147 Waverly Place, New York
 Taylor Instrument Co., Rochester, N. Y.
 Thomas Co., A. H., W. Washington Square, Philadelphia
 Weule Co., Louis, 6 California St., San Francisco
 Williams, Brown & Earle, Inc., 918 Chestnut St., Philadelphia

SAND BLAST EQUIPMENT

Hoevel Mfg Corp, 154 Ogden Av., Jersey City, N. J.
 Industrial Air Engr. Co., Cleveland
 Mott Sand Blast Mfg Co., Chicago
 Pangborn Corporation, Hagerstown, Md.
 Tighlman-Brooksbank Sand Blast Co., Philadelphia

SAND MIXING MACHINES

Bitz Sand Mixing & Sifting Machine Co., 1314 Findlay Av., New York
 Cullen, Wm. J., 30 Church St., New York
 Gould & Eberhardt, 95 N. J. R. R. Av., Newark, N. J.
 McCormick Co., J. S., Pittsburgh
 Obermayer Co., S., Cincinnati
 Olhe, Paul O., 30 Broad St., New York
 Osborn Manufacturing Co., 55 N. Clark St., New York
 Paxson Co., J. W., 1022 Delaware Av., Philadelphia
 Sellers & Co., Wm., 1600 Hamilton St., Philadelphia
 Standard Sand & Machine Co., 5151 St. Clair, Cleveland
 Standard Scale & Supply Co., 145 Chambers St., New York

SAW SHARPENING MACHINES

Atkins & Co., E. C., 56 Reade St., New York
 Bass Bros., 82 Walker St., New York
 Baldwin Tuthill & Bolton, Grand Rapids, Mich.
 Cochran-Bly Co., Rochester, N. Y.
 Covell Manufacturing Co., Benton Harbor, Mich.
 Diamond Machine Co., Providence, R. I.
 Disston & Sons, H., Box 1537, Philadelphia
 Frevert Machinery Co., 38 Vesey St., New York
 Leonard & Co., J. H., 20 Vesey St., New York
 McCabe, J. J., 149 Broadway, New York
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Newton Machine Tool Wks, 23d & Vine Sts., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Oliver Machinery Co., 50 Church St., New York
 Prentiss Tool & Supply Co., 149 Broadway, New York
 Rogers & Co., Samuel C., Buffalo, N. Y.
 Sellers & Co., Wm., 1600 Hamilton St., Philadelphia
 Wright Co., Chas. E., Kenilworth, N. J.

SAWING MACHINES, Metal Cutting (See Also Hack Saws, Power)

Armstrong-Blum Mfg Co., Chicago
 Atkins & Co., Inc., E. C., Indianapolis, Ind.
 Diamond Saw & Stamp Works, Buffalo
 Espen-Lucas Co., The, Philadelphia
 Henes, Louis G., San Francisco
 Metal Saw & Machine Co., Springfield, Mass.
 Napier Saw Works, Springfield, Mass.
 Newton Machine Tool Works, Philadelphia
 Thompson & Son Co., The Henry G., New Haven, Conn.
 Victor Saw Works, Springfield, Mass.

SAWS, Band, Metal Cutting

Atkins & Co., Inc., E. C., Indianapolis, Ind.
 Huther Bros. Saw Mfg Co., Rochester, N. Y.
 Metal Saw & Mach. Co., Inc., Springfield, Mass.
 Pittsburgh Saw & Mfg Co., Pittsburgh
 Thompson & Son Co., The Henry G., New Haven, Conn.

SAWS, Circular, Metal Cutting

Atkins & Co., Inc., E. C., Indianapolis, Ind.
 Espin-Lucas Mach. Works, The, Philadelphia
 Hunter Saw & Mach. Co., Pittsburgh
 Pittsburgh Saw & Mfg Co., Pittsburgh
 Tindell-Morris Co., Eddystone, Pa.

STERLING-COOPER CO., NEW YORK

SAWS, Hack (See Hack Saws, Hand & Power)**SCALES, Platform, Beam, etc.**

American Kron Scale Co., 430 E. 53d St., New York
 Fairbanks, Morse & Co., Chicago
 Standard Scale & Supply Co., Pittsburgh

SCALES, Small (See Balances)**SCALING, Boiler & Ship**

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100
 Southland Steamship Co., Savannah, Ga., see p. 101
 United Marine Contracting Corp., 15 Whitehall St., New
 York, see p. 128

SCARPHING MACHINES

Hilles & Jones Co., Wilmington, Del.
 Skinner & Eddy Corp., Seattle, Wash.

SCRAPERS, Carbon

Beckley Ralston Co., 1801 S. Michigan Av., Chicago
 Harrold Tool & Forge Co., Columbiana, Ohio
 Marcy Tool Works, Putnam, Conn.
 Montgomery & Co., 105 Fulton St., New York
 Nelson Manufacturing Co., Chicago
 Osborne & Co., C. S., 107 Chambers St., New York

SCRAPERS, Deck

Brombacher Co., A. F., 29 Fulton St., New York
 Bridgeport Hardware Mfg Co., Bridgeport, Conn.
 Flint & Chester, 2 South St., New York
 Hammacher, Schlemmer & Co., 4th Av. & 13th St., New
 York
 Leibfried, C. H., 97 Guernsey St., Brooklyn, N. Y.
 Modern Tool & Machine Works, Inc., 350 Mulberry St.,
 New York
 New England Tool Co., Boston
 Oshkosh Manufacturing Co., Oshkosh, Wis.
 Overton Manufacturing Co., Staatsburg, N. Y.
 Stortz & Son, John, 210 Vine St., Philadelphia
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.

SCRAPERS, Hull

Flint & Chester, 2 South St., New York
 Irvington Manufacturing Co., The, Irvington, N. J.
 Judson Cutlery Co., 41 Union Square, New York
 Leibfried, C. H., 97 Guernsey St., Brooklyn, N. Y.
 New England Tool Co., Boston
 Overton Manufacturing Co., Staatsburg, N. Y.
 Stortz & Son, John, 210 Vine St., Philadelphia
 Wiebusch & Hilger, 106 Lafayette St., New York
 Wilcox, Crittenden & Co., Inc., Middletown, Conn.

SCRAPERS, Machinists

Braunsdorf-Mueller Co., Elizabeth, N. J.
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Davis-Hunt-Colister Hardware Co., 2062 Ontario St.,
 Cleveland
 Disston & Son, Henry, Tacony, Philadelphia
 Flint & Chester, 2 South St., New York
 Goodell-Pratt Co., Greenfield, Mass.
 Hammacher, Schlemmer & Co., 4th Av. & 13th St., New
 York
 Irvington Mfg Co., The, Irvington, N. J.
 Kemp Machinery Co., 223 N. Calvert St., Baltimore
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Stortz & Son, John, 210 Vine St., Philadelphia
 Strong Machine & Supply Co., 21 Walker St., New York
 Sutton Vaughan Equipment Co., 346 Broadway, New York
 Veckel Tool Co., Cleveland
 Wiebusch & Hilger, Ltd., 110 Lafayette St., New York

SCRAPERS, Ship, All Metal

Bishop & Co., Geo. H., Lawrenceburg, Ind.
 Flint & Chester, 2 South St., New York
 Graham & Co., John H., 113 Chambers St., New York
 Modern Tool & Machine Works, Inc., 350 Mulberry St.,
 Newark, N. J.
 New England Tool Co., Boston
 Overton Mfg Co., Staatsburg, N. Y.
 Shapleigh Hardware Co., St. Louis, Mo.
 Vulcan Tool Co., Quincy, Mass.
 Wiebusch & Hilger, 106 Lafayette St., New York

SCREENS, Sand & Gravel

Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 (See also Wire Cloth)

SCREW MACHINE PRODUCTS

Artistic Bronze Co., Bridgeport, Conn.
 Atlas Bolt & Screw Co., Cleveland
 Broadway Hardware Co., Newport, R. I.
 Brunswick Manufacturing Co., San Francisco
 Corbin Screw Corp., New Britain, Conn.
 Detroit Screw Works, Detroit, Mich.
 Edelman & Co., E., Chicago
 Fairbanks Co., 416 Broome St., New York
 Ferry Cap & Set Screw Co., Philadelphia
 Flint & Chester, 2 South St., New York
 Gould-Mercereau Co., 48 W. 38th St., New York
 Hammacher, Schlemmer Co., 4th Av. & 13th St., New
 York
 Hartford Machine Screw Co., Hartford, Conn.
 Harvey Hubbell, Inc., Bridgeport, Conn.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Keystone Screw Co., Philadelphia
 Manning Maxwell & Moore, 119 W. 40th St., New York
 Montgomery & Co., 105 Fulton St., New York
 Moran Bolt & Nut Co., St. Louis, Mo.
 Morrow Manufacturing Co., Elmira, N. Y.
 Philadelphia Machine Screw Works, Philadelphia
 Progressive Manufacturing Co., The, Torrington, Conn.
 Reed & Prentice Mfg Co., Worcester, Mass.
 Sargent & Co., 94 Centre St., New York
 Scoville Manufacturing Co., Hartford, Conn.
 Shapleigh Hardware Co., St. Louis, Mo.
 Simmons Hardware Co., St. Louis, Mo.
 Strelinger & Co., Chas. A., 51 Larned St., E., Detroit, Mich.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 132 Chambers St., New York
 Waterbury Manufacturing Co., Waterbury, Conn.
 Western Screw Products Co., St. Louis, Mo.

SCREWS, Cap & Set

Brunswick Manufacturing Co., San Francisco
 Butts & Ordway Co., 32 Purchase St., Boston
 Cleveland Wrought Products Co., Cleveland
 Corbin Screw Corp., New Britain, Conn.
 Ferry Cap & Set Screw Co., Cleveland
 Flint & Chester, 2 South St., New York
 Morrow Manufacturing Co., Elmira, N. Y.
 Reed & Prentice Mfg Co., Worcester, Mass.
 St. Louis Screw Co., St. Louis, Mo.
 Sansom & Rowland, 505 Commerce St., Philadelphia
 Scoville Manufacturing Co., Waterbury, Conn.
 Upson Nut Co., Cleveland

SCREWS, Lag

Artistic Bronze Co., Bridgeport, Conn.
 Atlas Bolt & Screw Co., 1144 Ivanhoe Rd., N. E., Cleve-
 land
 Butts & Ordway Co., 32 Purchase St., Boston
 Corbin Screw Corp., New Britain, Conn.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Michigan Bolt & Nut Works, Detroit, Mich.
 Moran Bolt & Nut Co., Florida & 1st St., St. Louis, Mo.
 National Screw & Tack Co., Cleveland
 St. Louis Screw Co., 600 Clarence Av., St. Louis, Mo.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Topping Bros., 122 Chambers St., New York
 Wilcox, Crittenden & Co., Middletown, Conn.

SCRIBERS, Machinists

Brown & Sharpe, Providence, R. I.
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Davis-Hunt-Colister Hardware Co., 2062 Ontario St.,
 Cleveland
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 2 South St., New York
 Goodell Pratt Co., Greenfield, Mass.

STERLING-COOPER CO., NEW YORK

Hammacher, Schlemmer & Co. 4th Av., & 13th St., New York
 Machinists' Supply Co., Pittsburgh
 Starrett & Co. L. S., Athol, Mass.
 Stortz & Son, John, 210 Vine St., Philadelphia
 Torrington Co., The, Torrington, Conn.
 West Haven Manufacturing Co., West Haven, Conn.

SCUTTLE BUTTS

Brunswick Refrigerating Co., New Brunswick, N. J., see p. 95
 Clothe Refrigerating Co., 61 Broadway, New York, see p. 96
 Frick Company, Waynesboro, Pa., see p. 97
 York Manufacturing Co., York, Pa., see p. 98
SEA ANCHORS (See Anchors, Sea)

SEARCHLIGHT CONTROL GEAR

Boston Scale & Machine Co., Boston
 Butte Engine & Elec. Co., 683 Howard St., San Francisco
 Chadburn Telegraph Co. of America, Troy, N. Y.
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Hall Co., Wm., Wollaston, Mass.
 International Radio Telegraph Co., Farmers Bank Bldg., Pittsburgh
 Jackson Co., Wm. H., 335 Carrol St., Brooklyn, N. Y.
 Kaufman Metal Parts Co., Bellefontaine, Ohio
 Sperry Gyroscope Co., Brooklyn, N. Y.
 Wilton Tool & Mfg Co., Roxbury, Mass.

SEARCHLIGHTS

Arma Engineering Co., 228 40th St., Brooklyn, N. Y.
 Benjamin Electric Mfg Co., Chicago
 Carlisle & Finch Co., The, Cincinnati
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Herzog Electric & Engineering Co., San Francisco
 Sperry Gyroscope Co., Brooklyn, N. Y.
 Western Electric Co., 15 Fifth Av., New York

SEIZING, Hemp

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Columbian Rope Co., Auburn, N. Y.
 Hoffman-Corr Mfg Co., 594 Broadway, New York
 Kelly Co., Henry C., 35 Worth St., New York
 Macwhyte Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle
 Portland Cordage Co., Portland, Ore.
 Tubbs Cordage Co., San Francisco
 Whitlock Cordage Co., 46 South St., New York, see p. 27
 Woodward Wight & Co., Ltd., New Orleans, La.

SEIZING, Steel Wire, Annealed

Amalgamated Products Co., 165 Broadway, New York
 Brown-Wales Co., Fargo & Egmont St., Boston
 Hazard Manufacturing Co., Wilkes-Barre, Pa.
 Larkin & Co., J. L., 253 Broadway, New York
 Merchant & Evans, Philadelphia
 National Brass & Copper Tube Co., 41 Park Row, New York
 Roebling's Sons Co., J. A., 117 Liberty St., New York

SEMI-DIESEL ENGINES

Atlas Imperial Engine Co., Oakland, Cal.
 Bolinders Co., 30 Church St., New York
 De La Vergne Machine Co., Ft. E. 138th St., New York
 Dow Pump & Diesel Engine Co., Alameda, Cal.
 Fairbanks, Morse & Co., Chicago
 Ingersoll Rand Co., 11 Broadway, New York
 Johannsen, H. S., 25 W. 43d St., New York
 McIntosh & Seymour Corp., Auburn, N. Y.
 Midwest Engine Co., Indianapolis, Ind.
 Mietz Corp., August, 430 E. 19th St., New York
 Nordberg Mfg Co., Milwaukee, Wis.
 Pittsburgh Filter & Engine Co., Pittsburgh
 Skandia Pacific Oil Engine Co., Oakland, Cal.
 Sumner Co., H. W., Seattle, Wash.
 Western Machine Co., Los Angeles.
 Winton Oil Engine Works, Cleveland

SEPARATORS, Air & Steam

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 D'Este Co., Julian, Boston

Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Illinois Engineering Co., Chicago
 Kieley & Mueller, Inc., 34 W. 13th St., New York
 Standard Steam Specialty Co., The, 542-44 W. Broadway, New York
 United Machine & Mfg Co., Canton, Ohio
 Williams Valve Co., The D. T., Cincinnati
 Wright-Austin Co., Detroit, Mich.

SEPARATORS, Oil

American Tool & Machine Co., 10 High St., Boston
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 H. S. B. W.-Cochrane, Inc., 3140 N. 17th St., Philadelphia
 Illinois Engineering Co., Racine Av., & 21st St., Chicago
 Kieley & Mueller, Inc., 34 W. 13th St., New York
 Standard Steam Specialty Co., The, 542-44 W. Broadway, New York
 United Machine & Mfg Co., Canton, Ohio
 Williams Valve Co., The D. T., Cincinnati
 Wright-Austin Co., Detroit, Mich.

SEXTANTS

Brandis & Sons, Inc., 754 Lexington Av., Brooklyn, N. Y.
 Butler, Geo. E., 356 Calif St., San Francisco
 Chadburn Ship Tel. Co. of America, Troy, N. Y.
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Hand & Sons Co., John E., Haddonfield, N. J.
 Hutchinson & Co., Chas. C., 154 State St., Boston
 Kelvin & Wilfrid O. White, Boston
 Kuner Co., Max, Seattle, Wash.
 Nautical Instrument Mfg Co., 47 West St., New York
 Polk, R. C., Tacoma, Wash.

SHACKLES, Anchor & Chain (See Also Chain)

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
 Channon Manufacturing Co., James H., Chicago
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Laughlin Co., The Thos., Portland, Me.
 Lebanon Chain Works, Lebanon, Pa.
 McMillan's Sons, W. H., 153 South St., New York
 Malleable Iron Fittings Co., Branford, Conn.
 Marine Hardware Equipment Co., So. Portland, Me.
 Marine Manufacturing & Supply Co., 158 South St., New York
 Merrill Bros., Maspeth, N. Y.
 Neptune Hardware Mfg Co., So. Norwalk, Conn.
 United States Chain & Forging Co., Union Arcade, Pittsburgh, see p. 15
 Wilcox, Crittenden & Co., Middletown, Conn.

SHACKLES, Anchor, Screw, Wrought Iron

American Chain Co., Inc., Bridgeport, Conn., see pp. 16 & 17
 Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 McMillan's Sons, W. H., 153 South St., New York
 Marine Hardware Equipment Co., So. Portland, Me.
 Merrill Bros., Maspeth, N. Y.
 Montgomery & Co., 105 Fulton St., New York
 Oshkosh Manufacturing Co., Oshkosh, Wis.
 Topping Bros., 54 Warren St., New York
 Williams, Wm. E., 62 Front St., New York

SHAFT SLEEVES

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Eagle Brass Fdry Co., Seattle, Wash.
 Mesta Machine Co., Pittsburgh
 Sandusky Foundry & Machy Co., Sandusky, Ohio
 (See also Shafts, Crank, etc.)

SHAFTING (See Forgings, Steel)**SHAFTS, Bronze**

American Manganese Bronze Co., Holmesburg, Philadelphia, see p. 71

SHAFTS, Composition Propeller

American Brass Co., Ansonia, Conn.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100

STERLING-COOPER CO., NEW YORK

Cramps Sons Ship & Engine Bldg Co., The Wm., Philadelphia
 Eagle Brass Foundry Co., Seattle, Wash.
 Ellicott Machinery Corp., Baltimore
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 National Brass & Copper Tube Co., 41 Park Row, New York
 N. Y. Shipbuilding Corp., 120 Broadway, New York
 Reeves & Co., P. S., 1415 Catherine St., Philadelphia
 Taunton-New Bedford Copper Co., 35 Howard St., New York
 Titan Metal Co., Millsbury, Pa.

SHAFTS, Flexible

Almond Mfg Co., T. R., Ashburnham, Mass.
 Binghamton Flexible Shaft Co., Binghamton, N. Y.
 Coates Clipper Mfg Co., Worcester, Mass.
 Fancher Mfg Co., Baldwinville, N. Y.
 Gem Mfg Co., Pittsburgh
 Gray & Prior Mach Co., Hartford, Conn.
 Stow Mfg Co., Binghamton, N. Y.

SHAFTS, Steel, Crank

Line
 Propeller
 Tail
 Thrust

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa., see p. 100
 Camden Forge Co., Camden, N. J.
 Delaney Forge & Iron Co., Inc., Buffalo
 Erie Forge Co., Erie, Pa.
 Heppenstall Forge & Knife Co., Pittsburgh
 Hoooven, Owens, Rentschler Co., The, Hamilton, Ohio, see pp. 84-91
 Horsburgh Forge Co., The, Cleveland
 Llewellyn Iron Works, Los Angeles
 Mesta Machine Co., Pittsburgh
 Midvale Steel & Ordnance Co., Philadelphia
 Pacific Construction & Engineering Co., Seattle, Wash.
 Pennington Sons, Inc., Geo. W., San Francisco
 Pollak Steel Co., Cincinnati
 Tacony Steel Co., Franklin Trust Bldg., Philadelphia, see p. 19
 Titusville Forge Co., Titusville, Pa.
 Vulcan Iron Works, Inc., Jersey City, N. J.

SHAPERS

American Tool Works, Cincinnati
 Automatic Machine Co., The, Bridgeport, Conn.
 Cincinnati Shaper Co., The, Cincinnati
 Columbia Machine Tool Co., The, Hamilton, Ohio
 Davis Machine Tool Co., Rochester, N. Y.
 Frevert Machinery Co., 38 Vesey St., New York
 Garvin Machine Co., 139 Varick St., New York
 Gould & Eberhardt, Newark, N. J.
 Herbert's Machinery & Supply Co., Los Angeles
 Kelly Co., The R. A., Xenia, Ohio
 Lynd-Farquhar Co., Boston
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Morton Manufacturing Co., Muskegon, Mich.
 Newton Machine Tool Co., Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Ohio Machine Tool Co., The, Kenton, Ohio
 Osborne & Sexton Machinery Co., The, Columbus, Ohio
 Rhodes Manufacturing Co., The (Small), Hartford, Conn.
 Smith & Mills Co., Cincinnati
 Stockbridge Machine Co., Worcester, Mass.
 Streine Tool & Mfg Co. (Crank), New Bremen, Ohio

SHEARS, Alligator

Canton Foundry & Machine Co., The, Canton, Ohio
 Doelger & Kirsten, Milwaukee, Wis.
 Long & Allstatter Co., The, Hamilton, Ohio
 Stoll & Co., D. H., Buffalo, N. Y.
 Wickes Bros., Saginaw, Mich.

SHEARS, Angle

Kling Bros. Engineering Works, Chicago
 Long & Allstatter Co., The, Hamilton, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York

Southwark Foundry & Machine Co., Philadelphia
 Wickes Bros., Saginaw, Mich.

SHEARS, Plate

Camden Forge Co., Camden, N. J.
 Cleveland Punch & Shear Works, Cleveland
 Garrison Foundry Co., A., Pittsburgh
 Henes, Louis G., San Francisco
 Herbert's Machinery & Supply Co., Los Angeles
 Hilles & Jones, Wilmington, Del.
 Kling Bros. Engineering Works, Chicago
 Long & Allstatter Co., The, Hamilton, Ohio
 Loy & Nawrath Co., Newark, N. J.
 Mesta Machine Co., Pittsburgh
 Morgan Engineering Co., The, Alliance, Ohio
 Niles-Bement-Pond Co., 111 Broadway, New York

SHEARS, Rotary

Bliss Co., E. W., Adams & Plymouth Sts., Brooklyn, N. Y.
 Niagara Machine & Tool Wks (Sheet Metal to ½"), Buffalo, N. Y.
 Quickwork Co., St. Mary's, Ohio
 Southwark Foundry & Machine Co., Philadelphia

SHEARS, Steel, Hand Operated

Armstrong-Blum Manufacturing Co., Chicago
 Herbert's Machinery & Supply Co., Los Angeles
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Niagara Machinery & Tool Works, Buffalo
 Oliver Mfg Co., The W. W., Buffalo
 Pels & Co., Henry, 90 West St., New York
 Ryerson & Son, Jos. T., Chicago
 Tucker, W. A., & C. F., Hartford, Conn.

SHEARS, Tanners, Bench

Badger State Machine Co., Janesville, Wis.
 Boker Cutlery & Hardware Co., 101 Duane St., New York
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Heinisch Sons Wks, R., 109 Bruce St., Newark, N. J.
 Niagara Machine & Tool Wks, 685 Northland Av., Buffalo
 Peck, Stow & Wilcox, 46 W. Broadway, New York
 Sargent & Co., 94 Centre St., New York
 Simmonds & Sons Co., A. A., Dayton, Ohio
 Strelinger & Co., Chas. A., 43-51 Larned St., E., Detroit, Mich.

SHEAVES, Block

Boston & Lockport Block Co., Boston
 Channon Mfg Co., Jas. H., Chicago
 Cleveland Block Co., 1173 W. 11th St., Cleveland
 Corbin, P. & F., 101 Park Av., New York
 Dobbie Foundry & Machine Co., 74 Warren St., New York
 Dodge Manufacturing Co., 21 Murray St., New York
 Hunt-Helm-Ferris & Co., Harvard, Ill.
 Laughlin Co., The Thos., 143 Fore St., Portland
 Love Bros., Poughkeepsie, N. Y.
 Marine Hardware Equipment Co., Portland, Me.
 Mead-Morrison Mfg Co., 149 Broadway, New York
 Merriman Bros., Jamaica Plains, Boston
 Neptune Hardware Co., So. Norwalk, Conn.
 Pacific Block & Forging Co., San Francisco
 Roebling's Sons Co., J. A., Trenton, N. J.
 Surpluss Dunn & Co., 74 Murray St., New York
 Torrey Roller Bushing Wks, 36 Commercial St., Bath, Me.
 Union Hardware Co., Torrington, Conn.
 Wilcox, Crittenden & Co., Middletown, Conn.

SHIMS

Gasket Supply Co., The, 1726 Ludlow St., Philadelphia
 Laminated Shim Co., 533 Canal St., New York

SHIPBUILDERS (See Shipbuilding Section)**SHIP CHANDLERS (See Also Port Data Section)**

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58
 Neptunus Ship Supply Co., Inc., 73 Front St., New York, see p. 14
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

SHIP KNEES (See Knees)**SHOVELS, Coaling, Steel**

Alton Tool Co., Alton, Ill.
 Ames Shovel & Tool Co., No. Easton, Mass.
 Baldwin Tool Works, Parkersburg, W. Va.

STERLING-COOPER CO., NEW YORK

Chisholm Steel Shovel Works, 1588 E. 40th St., Cleveland
 Faitoute Iron & Steel Co., Newark, N. J.
 Pfeiffer & Co., John, 224 Race St., Philadelphia
 Pittsburgh Shovel Co., 1833 Oliver St., Pittsburgh
 Waight Shovel Co., Anderson, Ind.

SHOVELS, Molders

American Shovel & Stamp. Co., Lorain, Ohio
 Ames Shovel & Tool Co., Ames Bldg., Boston
 Baldwin Tool Works, Parkersburg, W. Va.
 Flint & Chester, 2 South St., New York
 Handlan Buck Mfg Co., 212 N. 3d St., St. Louis, Mo.
 Hill Brunner Foundry & Supply Co., 2107 S St., Cincinnati
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Obermayer Co., Cincinnati, Ohio
 Osborn Manufacturing Co., 5401 Hamilton Av., Cleveland
 Pfeiffer & Co., John, 224 Race St., Philadelphia
 Pittsburgh Shovel Co., Pittsburgh
 Union Furnace Mfg Co., Union Furnace, Pa.
 Waight Shovel Co., Anderson, Ind.
 Wyoming Shovel Works, Wyoming, Pa.

SIGNALS, Day, Canvas Shapes

Barnett, Inc., E. H., 37 Newark Av., Jersey City, N. J.
 Bendus Co., J. V., 39 Cortland St., New York
 Bottger Bros. Co., Ft. Hubbard St., Brooklyn, N. Y.
 College Point Boat Corp., College Point, Long Island
 Pease & Co., L. F., Providence, R. I.

SIGNALS, Night

Pain, Henry J., 18 Park Place, New York
 (See also *Ship Chandlers, Port Data Section*)

SIGNALS, Night, Electric (See Blinker)**SKYLIGHT OPERATING GEAR**

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100

Drouve Co., The G., Bridgeport, Conn.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Harris Engrg Co., H. E., Bridgeport, Conn.

SKYLIGHTS

Aspromet Co., Pittsburgh
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100

Drouve Co., The G., Bridgeport, Conn.
 Leonard Sheet Metal Works, Hoboken, N. J.
 Lupton's Sons Co., David, Philadelphia

SLATE, Electrical

Clark & Flanagan, Fairhaven, Vt.
 Fairhaven Marble M. S. Co., Fairhaven, Vt.
 New York Slate Works, 255 E. 138th St., New York
 North Bangor Slate Co., Bangor, Pa.

SLEDGES, Blacksmith & Coal

Beall Bros., East Alton, Ill.
 Flint & Chester, 2 South St., New York
 Hammacher, Schlemmer & Co., 133 4th Av., New York
 Iron City Tool Works, 32 & Smallman Sts., Pittsburgh
 Pollard, Joseph, 141 Raymond St., Brooklyn, N. Y.
 Scully Steel & Iron Co., Chicago
 Verona Tool Works, Oliver Bldg., Pittsburgh
 Vulcan Tool Co., Quincy, Mass.
 Warren Tool & Forge Co., Warren, Ohio
 Warwood Tool Co., Wheeling, W. Va.

SLICING MACHINES, Meat & Bread

American Slicing Machine Co., 209 S. State St., Chicago
 Barth & Sons Co., L., 32 Cooper Square, New York
 Buell Co., B. B., 911 Western Av., Seattle, Wash.
 Jacob Bros. Co., Inc., The, 71 Warren St., New York
 U. S. Slicing Machine Co., La Porte, Ind.

SLINGS, Chain

American Chain Co., Inc., Bridgeport, Conn., see pp. 16
 & 17
 United States Chain & Forging Co., Union Arcade,
 Pittsburgh, see p. 15

SLOTTERS

Dill Machine Co., Inc., T. C., Philadelphia
 Garvin Machine Co., 139 Varick St., New York

Henes, Louis G., San Francisco
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Newton Machine Tool Works, Philadelphia
 Niles-Bement-Pond Co., 111 Broadway, New York
 Rhodes Manufacturing Co., The, Hartford, Conn.
 Sellers & Co., Wm., Philadelphia

SLUSHING COMPOUND

American Oil Corp, 11 Broadway, New York
 American Oil & Supply Co., Newark, N. J.
 Atlantic Refining Co., Philadelphia
 Bayerson Oil Works, Erie, Pa.
 Buck & Co., E. A., Palmer, Mass.
 Clark Co., Fred. G., 1091 W. 11th St., Cleveland
 Cook's Sons, Adam, 708 Wash. St., New York
 Crane Co., L. M., Boston
 Crew, Levick Co., 109 N. Broad St., Philadelphia
 Dearborn Chemical Co., 299 Broadway, New York
 Detroit Soluble Oil Co., Detroit, Mich.
 Duffy Oil & Grease Co., 505 W. 45th St., New York
 Fiske Bros. Refining Co., 24 State St., New York
 Galena Signal Oil Co., Franklin, Pa.
 Globe Refining Co., Cleveland
 Gulf Refining Co., Pittsburgh
 Harris Oil Co., A. W., Providence, R. I.
 Hollingshead Co., R. M., Camden, N. J.
 Indian Refining Co., 244 Madison Av., New York
 Moore Oil Co., Mfg Dept., Cincinnati
 N. Y. & N. J. Lubricant Co., 401 Broadway, New York
 Pierce Oil Co., St. Louis, Mo.
 Sinclair Refining Co., Chicago
 Sullivan Oil Co., Chicago
 Swan & Finch, 522 Fifth Av., New York
 Texas Co., The, 17 Battery Pl., New York, see pp. 61-64
 Warren Bros. Co., 142 Berkeley St., Boston
 White Star Refining Co., Detroit, Mich.

SOCIETIES, Technical

American Bureau of Shipping, 66 Beaver St., New York
 American Inst. of Elec. Engrs., 33 Vesey St., New York
 American Soc. of Mech. Engrs., 29 W. 39th St., New York
 American Soc. of Naval Engrs., Navy Dept., Washington,
 D. C.
 American Society for Testing Materials, 1315 Spruce St.,
 Philadelphia
 Bureau of Standards, Dept. Commerce, Washington, D. C.
 Steamboat Inspe. Serv., Dept. Com., Washington, D. C.

SOCKETS, Lamp, Wall Key, Keyless, etc.

Benjamin Electric Mfg Co., Chicago
 Bryant Electric Co., Bridgeport, Conn.
 Cutler-Hammer Mfg Co., The, Milwaukee, Wis.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Herzog Electric & Engineering Co., San Francisco
 Livingston & Co., Inc., J., 104 E. 41st St., New York
 Ne Page McKinney Co., Portland, Ore.
 Philadelphia Electric Co., The, 132 S. 11th St., Philadelphia
 Pittsburgh Electric & Machine Co., Pittsburgh
 Royal-Eastern Elec. Sup. Co., 114 W. 27th St., New York
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich.,
 see p. 43
 Union Electric Co., Trenton, N. J.
 Western Electric Co., 151 Fifth Av., New York
 Yost Electric Mfg Co., The, Toledo, Ohio

SOCKETS, Lamp, Weatherproof, Hard Rubber

American Hard Rubber Co., 11 Mercer St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Johns-Pratt Co., The, Hartford, Conn.
 Latham & Co., E. B., 550 Pearl St., New York
 Shaw Insulator Co., 5 Kirk Place, Newark, N. J.
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Watertown Mfg Co., Watertown, Conn.

SOCKETS, Table, Bronze

Corbin, P. & F., New Britain, Conn.
 Gould-Mercereau Co., 48 W. 38th St., New York
 Norwalk Lock Co., So. Norwalk, Conn.
 Miller Co., J. Walter, Lancaster, Pa.
 Western Brass Mfg Co., 2007 Marshall Blvd., Chicago

SOCKETS, Wire Rope (Wire Rope Fittings)

SODA ASH

Ferguson, Jr., Alex C., Drexel Bldg., Philadelphia
 Mendleson Corp., The, 15 W. 34th St., New York
 Neptunus Ship Supply Co., Inc., 73 Front St., New York,
 See p. 14
 Partola Mfg Co., 160 Second Av., New York

SOLDER, Aluminum

Central Smelting & Refining Co., Long Island City, N. Y.
 Chicago Hardware Foundry Co., 168 Church St., New York
 Gardiner Mfg Co., 1514 Prospect Av., Cleveland
 Lumen Bearing Co., Buffalo, N. Y.
 Metals Welding Co., Cleveland
 Syracuse Smelting Works, 196 Diamond St., Bklyn, N. Y.
 U. S. Aluminum Co., 120 Broadway, New York

SOLDER, Half & Half, Bar

Rosin Core
 Wire

Spelter, Long Grain
 Wiping

American Lead Co., 52 Vanderbilt Av., New York
 Atlantic Smelt. & Ref. Works, Inc., 57 Richards St.,
 Brooklyn, N. Y.
 Chicago Solder Co., 218 N. Union Av., Chicago
 Columbia Smelt. Ref. Co., 365 West St., New York
 Empire Metal Co., Syracuse, N. Y.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St.,
 New York
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Merchant & Evans, Philadelphia
 Nassau Smelt. & Ref. Works, 603 W. 29th St., New York
 National Lead Co., 111 Broadway, New York
 North Atlantic Metal Corp., 29 Broadway, New York
 Pacific Metal Works, San Francisco
 Rochester Lead Mfg Co., Rochester, N. Y.
 Sandoval Zinc Co., 410 N. Peoria St., Chicago
 Standard Smelting & Ref Co., 547 W. 21st St., New York
 Standard Underground Cable Co., Pittsburgh
 United American Metal Corp., 196 Diamond St., Brooklyn,
 N. Y.

SOLDER, Silver Strip

Ajax Metal Co., Philadelphia
 Baker & Co., Inc., 30 Church St., New York
 Jackson Co., J. J., 156 Astor St., Newark, N. J.
 Merchant & Evans, Philadelphia
 Noble & Co., F. H., 15 Maiden Lane, New York

SOLDER POTS

American Electric Heater Co. (Electric), 1365 Woodward
 Av., Detroit, Mich.
 Clayton & Lambert Mfg Co., Detroit, Mich.
 Cutter & Woods Supply & Co., 68 Pearl St., Boston
 Emmelman Bros. Mfg Co., Indianapolis, Ind.
 Flint & Chester, 2 South St., New York
 Focht Sons, Geo., Hoboken, N. J.
 Garrison Brass Works, 107 W. 13th St., New York
 Peck, Stow & Wilcox, 46 W. Broadway, New York
 Russell Electric Co. (Electric), Chicago
 Shapleigh Hardware Co., St. Louis, Mo.
 Simplex Electric Heating Co. (Electric), Detroit, Mich.
 Standard Plumbing Supply Co., St. Ann's Av., & 159th St.,
 New York
 Standard Sanitary Mfg Co., Pittsburgh
 Turner Brass Works, 30 Warren St., New York
 Woodward Sanitary Mfg Co., Pittsburgh

SOLDERING FLUID

Callahan & Co., Geo., 218 Front St., New York
 Chicago Solder Co., Chicago
 Dielectric Manufacturing Co., St. Louis
 General Chemical Co., 25 Broad St., New York
 Hammacher, Schlemmer & Co., 133 Fourth Av., New York
 Leveridge, Inc., Chas. W., 133 Liberty St., New York
 McGill Manufacturing Co., Valparaiso, Ind.
 Reade Manufacturing Co., 1023 Grand St., Hoboken, N. J.
 Ruby Chemical Co., Columbus, Ohio
 Seldner & Enequist, 86 Hausman St., Brooklyn, N. Y.

SOLDERING IRONS (See Coppers, Soldering)**SOLDERING PASTE, Electric, Non-Acid**

Arnessen Electric Co., 109 Broad St., New York
 Bissell Co., The F., 226 Huron St., Toledo, Ohio
 Brach Supply Co., L. S., Newark, N. J.
 Bunnell & Co., J. H., 32 Park Place, New York
 Central Electric Co., Chicago
 Chicago Solder Co., 218 N. Union Av., Chicago
 Dielectric Manufacturing Co., St. Louis, Mo.
 Garton Co., The W. R., 15 So. Desplaines St., Chicago
 Hess & Son, 1302 Filbert St., Philadelphia
 Killoch Co., David, 57 Murray St., New York
 Latham & Co., E. B., 4 Murray St., New York
 Livingston & Co., Inc., J., 70 E. 45th St., New York
 Manhattan Electrical Supply Co., 17 Park Place, New York
 Philadelphia Elec. Co., The, 132 S. 11th St., Philadelphia
 Pittsburgh Electric & Machine Co., Pittsburgh
 Pruden Hardware Co., W. E., 864 8th Av., New York
 Stanley & Patterson, 23 Murray St., New York
 Western Electric Co., 151 Fifth Av., New York
 Wetmore-Savage Co., 76 Pearl St., Boston

SOOT BLOWERS

Adriance-Bates Corp., Brooklyn, N. Y.
 Atlas Soot Blower Co., 101 Park Av., New York
 Bayer Steam Soot Blower Co., The, St. Louis, Mo.
 Diamond Power Specialty Co., Detroit
 Huyette Co., The Paul B., Philadelphia
 McClave-Brooks Co., Scranton, Pa.

SOUNDING MACHINES

Alford Manufacturing Co., Chelsea, Mass.
 Arma Engineering Co., 252 W. 29th St., New York
 Brock Tool & Mfg Wks, Arthur Jr., 533 N. 11th St.,
 Philadelphia
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Kelvin & Wilfrid O. White Co., 112 State St., Boston
 Keuffel & Esser Co., Hoboken, N. J.
 Lietz Co., A., 61 Post St., San Francisco
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Nautical Inst. Mfg Co., Inc., 47 West St., New York
 Negus, T. S. & J. D., 140 Water St., New York
 Polk, R. C., Tacoma, Wash.
 Sperry Gyroscope Co., Brooklyn, N. Y.
 Stoelting Co., C. H., Chicago
 Weule Co., Louis, 6 California St., San Francisco

SPACING TABLES

Terry Mfg Co., Edward F., Grand Cen. Term., New York
 Thomas Spacing Machine Co., Pittsburgh

SPANNERS, Hose, Galvanized Steel

Allen Fire Dept. Supply Co., 246 Greenwich St., New York
 Atlas Brass Mfg Co., Cleveland
 Danubil Co., 253 Broadway, New York
 Elkhart Brass Mfg Co., Elkhart, Ind.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Hayward & Co., S. F., 250 W. 54th St., New York
 Knowlton Rubber Co., Geo. W., 60 Pearl St., Boston
 Morse & Son, A. J., 221 High St., Boston
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 Woodhouse Manufacturing Co., 50 W. Bway, New York

SPARS & BOOMS, Wood

American Mast & Spar Corp., 110 W. 40th St., New York
 Booz Bros., Baltimore, Md.
 Coastwise Lumber & Supply Co., 17 Battery Pl., New York
 Dutton Lbr Corp, A. C., G. C. T. Bldg., New York
 International Spar Co., Seattle, Wash.
 Southland Steamship Co., Savannah, Ga., see p. 101
 Western Spar Co., Spalding Bldg., Portland, Ore.

SPHERES, Compensating, Binnacle

Ritchie & Sons, E. S., Brookline, Mass., see p. 22

SPIKES, Cut, Iron

Ames & Co., W., Jersey City, N. J.
 Butts & Ordway Co., 32 Purchase St., Boston
 Lanz & Son, Mathew, Pittsburgh
 Larkin, J. K., 253 Broadway, New York
 Leibfried, C. H., 97 Guernsey St., Brooklyn, N. Y.

Metal Products & Supply Co., Philadelphia
 Michelman & Gordon Iron Works, 267 Wyckoff Av.,
 Brooklyn, N. Y.

Penn Steel & Iron Co., Lancaster, Pa.
 Richmond Screw Anchor Co., Pulitzer Bldg., New York

SPIKES, Marline

Carver Tool Works, Spring Valley, N. Y.
 Drew & Co., Kingston, Mass.
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Laughlin Co., Thos., 143 Fore St., Portland, Me.
 New England Tool Co., Boston, Mass.
 Overton Manufacturing Co., Staatsburg, N. Y.
 Stortz & Son, John, 210 Vine St., Philadelphia
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

SPIKES, Wire, Steel

Ames & Co., Jersey City, N. J.
 American Steel & Wire Co., 30 Church St., New York
 Buhl Sons Co., 103 Woodbridge St., Detroit, Mich.
 Drew & Co., C., Kingston, Mass.
 Jolley & Co., J. H., 42 N. 5th St., Philadelphia
 Moran Bolt & Nut Co., Florida & 1st St., St. Louis, Mo.
 Pittsburgh Steel Co., Pittsburgh

SPITTOONS, Brass, Nickel Plated

Aldrich Manufacturing Co., Buffalo, N. Y.
 Arcade Manufacturing Co., Freeport, Ill.
 Manning Bowman & Co., Meriden, Conn.
 National Metal Spinning & Stamp. Co., 176 Grand St.,
 New York
 Ray Manufacturing Co., G. A., Buffalo, N. Y.
 Rochester Stamp. Co., 176 Anderson Av., Rochester, N. Y.

SPRINGS, Door, Spiral, Brass & Steel

Bommer Spring Hinge Co., 263 Classon Av., Bklyn., N. Y.
 Chicago Spring Butt Co., Chicago
 Dunbar Bros. Co., Bristol, Conn.
 Fischer Spring Co., Chas., 473 Kent Av., Brooklyn, N. Y.
 General Spring & Wire Co., Detroit, Mich.
 Hibbard, Spencer Bartlett Co., State St. Bridge, Chicago
 Lawson Manufacturing Co., Chicago
 Miller & Van Winkle, 18 Bridge St., Brooklyn, N. Y.
 Morgan Spring Co., Worcester, Mass.
 Novelty Manufacturing Co., Waterbury, Conn.
 Sargent & Co., 94 Centre St., New York
 Stenman Wire Specialty Co., Worcester, Mass.

SPRINGS, Valve

Acklin Stamping Co., Toledo, Ohio
 Dunbar Bros. Co., Bristol, Conn.
 General Spring & Wire Co., Detroit, Mich.
 Gibson Co., Wm. D., Chicago
 Jolley & Co., J. H., Philadelphia
 Miller & Van Winkle, 18 Bridge St., Brooklyn, N. Y.
 New York Wire & Spring Co., 586 Washington St., New
 York

Raymond Manufacturing Co., Ltd., Corry, Pa.
 Stenman Wire Specialty Co., Worcester, Mass.

SPRUCE, North Eastern

Sawn

Western

Sticks, Fender

Sticks, Spar

Altamas Lumber Co. (Lumber), Newark, N. J.
 Babcock Lumber Co. (Lumber), 43 Wall St., New York
 Bacon & Sons, A. S. (Sawn & Poles), Savannah, Ga.
 Blanchard Lumber Co. (Sawn), 126 State St., Boston
 Bossert & Sons, Inc., L. (Lumber), Brooklyn, N. Y.
 Burritt, A. W. (Lumber), Bridgeport, Conn.
 Cameron Lumber Co. (Sawn), Newburgh, N. Y.
 Central Timber Export Co. (Poles), 115 Bway., New York
 Coastwise Lumber & Supply Co., 17 Battery Pl., New York
 Crannell Lumber Co. (Sawn), Albany, N. Y.
 Creed Bros. (Sawn), Peekskill, N. Y.
 Dowd Lumber Co., 286 Av. A., New York
 Dutton Lumber Corp., A. C., G. C. T., New York
 East River Mill & Lumber Co., E. R. & 92d St., New York
 Elias & Bro., G. (Poles), 965 Elk St., Buffalo, N. Y.
 Emporium Lumber Co., G. C. T. Bldg., New York
 Fowles & Silberhorn, 74 Beard St., Brooklyn, N. Y.

Gates & Co., C. E., East River & 152d St., New York
 Gill & Son, Wm. D. (Poles), Baltimore
 Godfrey Co., L. N., 51 E. 42d St., New York
 Harroun & Son, J. E. (Sawn & Poles), Watertown, N. Y.
 Hofferberth, Chas. F., 530 W. 21st St., New York
 Hoskins Lumber Co., J. S. (Poles), Baltimore, Md.
 Hunterspoint Lumber Co. (Sawn), Dignan Wharf, L. I. C.,
 New York

James & Abbot Co. (Lumber), 155 Milk St., Boston
 Johnson Bros., 45 Classon Av., Brooklyn, N. Y.
 Kalt Lumber Co. (Poles), 320 E. 64th St., New York
 Lawson & McMurray, Hoboken, N. J.
 Leary & Reid, Java & Provost Sts., Brooklyn, N. Y.
 Luther, T. C., Mechanicville, N. Y.
 Magee, Wm. P., E. Machias, Me.
 National Timber Co. (Poles), Mobile, Ala.
 Nelson, Jr., Inc., John M. (Lumber), Pottsville, Pa.
 Peckham, Wolf & Co., Schenectady, N. Y.
 Ross, Jr., Sylvester, 3d Av. & 68th St., Brooklyn, N. Y.
 Slaymaker & Co., S. E. (Lumber), 200 5th Av., New York
 Stansbury, Jas. H., Hollis, L. I., N. Y.
 Starr Reitzell Lumber Co., Philadelphia
 Stevens-Eaton Co., 1 Madison Av., New York
 Storm & Co., Geo. H. (Sawn & N. E.), 545 E. 71st St.,
 New York
 Studley Box & Lumber Co. (Sawn), Rochester, N. Y.
 Thompson & Sons, Jas. (Lumber), Stapleton, N. Y.
 Tisdale Lumber Co., Long Island City, New York
 Whitmer & Sons, Inc., Wm., (Sawn & N. E.), Philadelphia
 Williams Co., R. A. & J. J., Philadelphia
 Woodstock Lumber Co., The (Poles), 131 State St., Boston
 Wyatt Prock Lumber Co. (Poles), Philadelphia

SQUARES, Caliper

Combination Tri- & Meter

Machinists', Tri-

Brown & Sharpe, Providence, R. I.
 Cutter & Wood Supply Co., 68 Pearl St., Boston
 Davis-Hunt-Collister Hardware Co., 2062 Ontario St.,
 Cleveland
 Fairbanks Co., 416 Broome St., New York
 Flint & Chester, 237 Lafayette St., New York
 Hammacher, Schlemmer & Co., 4th Av., & 13th St., New
 York
 Harris Co., Samuel, 114 N. Clinton St., Chicago
 Johnson Rule Mfg Co., E. P., 565 Washington Blvd.,
 Chicago
 Manning, Maxwell & Moore, 119 W. 40th St., New York
 Stanley Rule & Level Co., The, New Britain, Conn.

SQUARES, Tri-, Woodworkers'

Acme Level Co., Toledo, Ohio
 Dean & Robinson, 11 Warren St., New York
 Disston & Sons, Henry, Tacony, Philadelphia
 New York Blue Print Paper Co., 102 Reade St., New York
 Sargent & Co., 94 Centre St., New York

SQUILGEES, Without Handle

Cleveland Osborn Manufacturing Co., Cleveland
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Holcomb Manufacturing Co., J. J., Indianapolis, Ind.
 Patterson, Gottfried & Hunter, 211 Centre St., New York

STARTERS, Electric

Motor, Automatic

Motor, Hand

Allen-Bradley Co., Milwaukee, Wis.
 Automatic Switch Co., 154 Grand St., New York
 Cutler-Hammer Mfg. Co., 50 Church St., New York, see
 p. 35
 Fidelity Electric Co. (A. C. Only), Lancaster, Pa.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Industrial Controller Co., Milwaukee, Wis.
 Monitor Controller Co., Baltimore

STAYBOLTS

Atlanta Bolt & Steel Products Co., Atlanta, Ga.
 Burden Iron Co., Troy, N. Y.
 Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio
 Flannery Bolt Co., Vanadium Bldg., Pittsburgh
 Lockhart Iron & Steel Co., Pittsburgh
 Rome Iron Mills, Inc., Rome, N. Y.

Ryerson & Son, Jos. T., Chicago
Sligo Iron & Steel Co., Connellsville, Pa.

STEAM PURIFIERS

Tracy Engineering Co., The, 473 Sixth St., San Francisco,
see p. 13

STEAM SEPARATORS (See Separators, Air & Steam)

STEAMSHIP COMPANIES (See Also Steamship Co. Section)

Page & Jones, Mobile, Ala., see p. 102
Southland Steamship Co., Savannah, Ga., see p. 101
U. S. Mail Steamship Co., Inc., 120 B'way, New York,
see p. 130D

STEEL, Alloy, Miscellaneous

Alloy Steel & Metals Co., Philadelphia
Disston & Sons, Inc., Henry, Philadelphia
Electric Steel & Forge Co., Cleveland
Illingsworth Steel Co., The John, Frankford, Philadelphia
Le Moyne Steel Co., Monongahela City, Pa.
Ludlum Steel Co., Watervliet, N. Y.
Peerless Drawn Steel Co., The, Massillon, Ohio
Pittsburgh Tool Steel Wire Co., Monaca, Pa.
Simonds Mfg Co., Lockport, N. Y.
Ward's Sons, Edgar T., Philadelphia
Wheelock, Lovejoy & Co., Inc., Boston
(See also Specific Alloys)

STEEL, Angles, Channels, I-Beams, Tees, etc.

Belmont Iron Works, Philadelphia
Bethlehem Steel Co., So. Bethlehem, Pa.
Betz-Pierce Co., The, Cleveland
Carbon Steel Co., Pittsburgh
Carnegie Steel Co., Pittsburgh
Carpenter Steel Co., Reading, Pa.
Castle & Co., A. M., Chicago
de Cou Co., Richard, Philadelphia
Donner Steel Co., Buffalo, N. Y.
Eastern Steel Co., Pottsville, Pa.
Egleston Bros. & Co., Inc., New York
Grant, Robert, 233 Broadway, New York
Gulf States Steel Co., Birmingham, Ala.
Harvey & Co., Arthur C., Boston
Hawkrider Bros. Co., Boston
Heyward, Thos. R., Pittsburgh
Illinois Steel Co., 208 So. La Salle St., Chicago
Inland Steel Co., Chicago
Interstate Iron & Steel Co., Chicago
Jones & Laughlin Steel Co., Pittsburgh
Lackawanna Steel Co., Buffalo, N. Y.
Llewellyn Iron Works, Los Angeles
Lockhart Iron & Steel Co., Pittsburgh
Lukens Steel Co., Coatesville, Pa.
Oliver Iron & Steel Co., Pittsburgh, Pa.
Pacific Coast Steel Co., San Francisco
Pacific Rolling Mill Co., 17th & Mississippi St., San Francisco
Phoenix Iron Co., The, Philadelphia
Pollak Steel Co., The, Cincinnati
Republic Iron & Steel Co., Youngstown, Ohio
Trimble Steel Co., H. N., Pittsburgh
Virginia Bridge & Iron Co., Roanoke, Va.
Ward's Sons, Edgar T., Philadelphia

STEEL, Bar, Heat-Treated Billet, Semi-Finished Slab, Semi-Finished

Bethlehem Steel Co., South Bethlehem, Pa.
Brown-Wales Co., Fargo & Edmont Sts., Boston
Camden Forge, Camden, N. J.
Carnegie Steel Co., Pittsburgh
Columbia Steel & Shafting Co., The, 295 Bway., New York
Eddystone Steel Co., Crum Lynne, Pa.
Erie Forge Co., Erie, Pa.
Froment & Co., 150 Bank St., New York
Hammond Steel Co., 233 Broadway, New York
Hess Steel Corp., Loney Lane & P. R. R., Baltimore
Midvale Steel & Ordnance Co., Philadelphia
National Forge & Tool Co., Youngsville, Pa.
New York Iron & Steel Prod. Co., 143 Chambers St.,
New York
Pennsylvania Forge Co., Bridesburg, Philadelphia

Smith & Sons, Inc., David H., 151 51st St., Brooklyn, N. Y.
Tacony Steel Co., Franklin Trust Bldg., Philadelphia,
see p. 19

Wheelock, Lovejoy & Co. Inc., Boston

STEEL, Chrome Nickel & Nickel

Andrews Steel Co., Newport, Ky.
Carnegie Steel Co., Pittsburgh
Electrical Alloy Co., The, Morristown, N. J.
Hammond Steel Co., Inc., The, Syracuse, N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago
Milne & Co., A., 741 Wash. St., New York
Steel Sales Corp., Chicago
Tacony Steel Co., Franklin Trust Bldg., Philadelphia,
see p. 19

Union Drawn Steel Co., Beaver Falls, Pa.
United Alloy Steel Corp., Canton, Ohio

STEEL, Chrome Vanadium

Andrews Steel Co., Newport, Ky.
Carnegie Steel Co., Pittsburgh
Hammond Steel Co., Inc., The, Syracuse
Illinois Steel Co., 208 S. La Salle St., Chicago
McInnes Steel Co., Corry, Pa.
Steel Sales Corp., Chicago
Union Drawn Steel Co., Beaver Falls, Pa.
United Alloy Steel Corp., Canton, Ohio
Vanadium-Alloys Steel Co., Pittsburgh

STEEL, Electric

Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., So. Bethlehem, Pa.
Betz-Pierce Co., The, Cleveland
Carnegie Steel Co., Carnegie, Pa.
Electric Steel & Forge Co., Cleveland
Hess Steel Corp., The, Baltimore
Illinois Steel Co., 208 So. La Salle St., Chicago
Latrobe Electric Steel Co., Latrobe, Pa.
Ludlum Steel Co., Watervliet, N. Y.
Simonds Mfg Co., Lockport, N. Y.
Sizer Forge Co., Buffalo, N. Y.
United Alloy Steel Corp., Canton, Ohio
Wheelock, Lovejoy & Co., Inc., Boston

STEEL, Molybdenum

American Metal Co., Ltd., The, 61 Broadway, New York

STEEL, Plate, Boiler

Allegheny Steel Co., Brackenridge, Pa.
Carbon Steel Co., Pittsburgh
Carnegie Steel Co., Pittsburgh
Central Iron & Steel Co., Harrisburg, Pa.
Crucible Steel Co. of America, Pittsburgh
Delaware River Steel Co., Chester, Pa.
Donner Steel Co., Inc., Buffalo, N. Y.
Glasgow Iron Co., Pottstown, Pa.
Inland Steel Co., First Nat'l Bank Bldg., Chicago
Lukens Iron & Steel Co., Coatesville, Pa.
Nagle Steel Co., Pottstown, Pa.
Republic Iron & Steel Co., Youngstown, Ohio
Wood Iron & Steel Co., Allan, Widener Bldg., Philadelphia
Worth Brothers Co., Coatesville, Pa.
Worth Steel Co., Claymont, Del.

STEEL, Plate, Floor

American Pressed Steel Co., Philadelphia
American Rolling Mill Co., Middletown, Ohio
Bethlehem Steel Co., So. Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, Ohio
Carnegie Steel Co., Pittsburgh
Hoffman & Co., R. C., Baltimore
Midvale Steel & Ordnance Co., Philadelphia
Wood Iron & Steel Co., Allan, Philadelphia
Worth Steel Co., Claymont, Del.

STEEL, Plate, Hull

Allegheny Steel Co., Pittsburgh
American Iron & Steel Co., Reading, Pa.
American Rolling Mill Co., Middletown, Ohio
American Sheet & Tin Plate Co., Pittsburgh
Bethlehem Steel Co., So. Bethlehem, Pa.
Boker & Co., H., 10 Duane St., New York
Cambria Steel Co., Philadelphia
Camden Forge Co., Camden, N. J.
Carbon Steel Co., Pittsburgh

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Carnegie Steel Co., Pittsburgh
 Central Iron & Steel Co., Harrisburg, Pa.
 Cleveland Steel Co., Chicago
 Crucible Steel Co. of America, Pittsburgh
 Erie Forge Co., Erie, Pa.
 Garfield Myers Co., San Francisco
 Harrisburg Pipe & Pipe Bending Co., Harrisburg, Pa.
 Hoffman & Co., Inc., R. C., Baltimore, Md.
 Hoopes & Townsend, Philadelphia
 Illinois Steel Co., Chicago
 Jones & Laughlin Steel Co., Pittsburgh
 La Belle Iron Works, Steubenville, Ohio
 Lackawanna Steel Co., Buffalo, N. Y.
 Lukens Iron & Steel Co., Coatesville, Pa.
 Midvale Steel & Ordnance Co., Philadelphia
 Nagle Steel Co., Pottstown, Pa.
 Otis Steel Co., Cleveland
 Pennsylvania Steel Co., Philadelphia
 Pollak Steel Co., Cincinnati
 Republic Iron & Steel Co., Youngstown, Ohio
 Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
 West Penn Steel Co., Brackenridge, Pa.
 Whitaker-Glessner Co., Wheeling, W. Va.
 Wood Iron & Steel Co., Allan, Morris Bldg., Philadelphia
 Worth Bros. Co., Philadelphia
 Worth Steel Co., Claymont, Del.
 Youngstown Iron & Steel Co., Youngstown, Ohio
 Youngstown Sheet & Tube Co., Youngstown, Ohio

STEEL, Sheet, Black, for Tinning

American Rolling Mill Co., Middletown, Ohio
 American Sheet & Tin Plate Co., Pittsburgh
 Follansbee Brothers Co., Pittsburgh
 Jones & Laughlin Steel Co., Pittsburgh
 McKeesport Tin Plate Co., McKeesport, Pa.
 Pittsburgh Sheet & Tin Plate Co., Pittsburgh
 Washington Tin Plate Co., Washington, Pa.
 Wheeling Steel Iron Co., Wheeling, W. Va.

STEEL, Sheet Black & Special Finish, Blue & Open Annealed, Galvanized

Aetna Steel Products Co., 30 Church St., New York
 American Rolling Mill Co., Middletown, Ohio
 Andrews Steel Co., Newport, Ky.
 Barnes & Co., Winfield S., 20th & Erie Av., Philadelphia
 Belmont Iron Works, 2915 Wash. Av., Philadelphia
 Betz-Pierce Co., The, Cleveland
 Brier Hill Steel Co., Youngstown, Ohio
 Canton Sheet Steel Co., Canton, Ohio
 Carbon Steel Co., Pittsburgh
 Castle & Co., A. M., 718 N. Morgan St., Chicago
 Cleveland Steel Co., Rockefeller Bldg., Cleveland
 Falcon Steel Co., The, Niles, Ohio
 Hale & Kilborn Corp., Lehigh Av. & 8th St., Philadelphia
 Harris Bros. Co., 35th & Iron Sts., Chicago
 Heywood Co., Thos. R., Pittsburgh
 Hoffman Co., R. C., Baltimore
 Inland Steel Co., Chicago
 Jessop Steel Co., Washington, Pa.
 La Belle Iron Works, Steubenville, Ohio
 Lukens Steel Co., Coatesville, Pa.
 McCoy Steel & Tin Plate Co., Chicago
 Mahoning Valley Steel Co., The, Niles, Ohio
 Mark-Lally Co., 235 Second St., San Francisco
 Merchant & Evans, Philadelphia
 Morris Wheeler & Co., 30th & Locust St., Philadelphia
 Newport Rolling Mill Co., Newport, Ky.
 Penn Metal Co., 65 Franklin St., Boston
 Seneca Iron & Steel Co., Buffalo, N. Y.
 Sharon Iron & Metal Co., Sharon, Pa.
 Stark Rolling Mill Co., Canton, Ohio
 Trimble Steel Co., H. N., Pittsburgh
 Trumbull Steel Co., Warren, Ohio
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2
 Ward's Sons, Edgar T., 16 & Indiana Av., Philadelphia
 Weirton Steel Co., Weirton, W. Va.
 West Penn Steel Co. (Not Galvanized), Brackenridge, Pa.
 Whitaker-Glessner Co., Wheeling, W. Va.
 Wilkoff Co., Youngstown, Ohio
 Wood Iron & Steel Co., A., Widener Bldg., Philadelphia
 Youngstown Sheet & Tube Co., Youngstown, Ohio

STEEL, Spring

Athenia Steel Co., Athenia, N. J.
 Barnes Co., The Wallace, Bristol, Conn.
 Gautier & Co., D. G., 50 Church St., New York
 Halcomb Steel Co., Syracuse, N. Y.
 Hammond Steel Co., Inc., The, Syracuse, N. Y.
 Latrobe Electric Steel Co., Latrobe, Pa.
 Patriarche & Bell, New York
 Steel Sales Corp., Chicago
 Tacony Steel Co., Franklin Trust Bldg., Philadelphia, see p. 19

STEEL, Tool, Miscellaneous

Atlas Crucible Steel Co., Dunkirk, N. Y.
 Boker & Co., Inc., H., 101 Duane St., New York
 Carbon Steel Co., Pittsburgh
 Dickey Steel Co., Inc., The, 233 Broadway, New York
 Disston & Son, Inc., Henry, Philadelphia
 Federal Tool & Alloy Steel Corp., 233 Bway., New York
 Firth-Sterling Steel Co., McKeesport, Pa.
 Frasse & Co., Inc., Peter A., Varick & Canal Sts., New York
 Halcomb Steel Co., Syracuse, N. Y.
 Hawkridge Bros. Co., Boston
 Illingsworth Steel Co., The John, Frankford, Philadelphia
 Jessop & Sons, Inc., Wm., New York
 Ludlum Steel Co., Watervliet, N. Y.
 Pittsburgh Tool Steel Wire Co., Pittsburgh
 Potts & Co., Horace T., Philadelphia
 Selson Engineering Co., Inc., The, New York
 Tacony Steel Co., Franklin Trust Bldg., Philadelphia, see p. 19
 Ward's Sons, Edgar T., Philadelphia
 (See also *Specific Alloys*)

STEEL, Tungsten

Bethlehem Steel Co., So. Bethlehem, Pa.
 Blancke Co., L. C., 10 Thomas St., New York
 Boker & Co., H., 101 Duane St., New York
 Carnegie Steel Co., Pittsburgh
 Carpenter Steel Co., Reading, Pa.
 Colonial Steel Co., 57 Fargo St., Boston
 Firth-Sterling Steel Co., McKeesport, Pa.
 Halcomb Steel Co., Syracuse, N. Y.
 Hammond Steel Co., Inc., The, Syracuse, N. Y.
 Hardy, Chas., 15 Park Row, New York
 Hercules Electric Steel Corp., 145 Lafayette St., New York
 Hess Steel Corp., The, Baltimore
 Larkin & Co., J. K., 253 Broadway, New York
 Latrobe Electric Steel Co., Latrobe, Pa.
 Le Moyne Steel Co., Monongahela City, Pa.
 Ludlum Steel Co., Watervliet, N. Y.
 Metals & Alloys Co., The, Cleveland
 N. Y. Iron & Steel Products Co., 143 Chambers St., New York
 Purdy Co., A. R., 127 Christopher St., New York
 Simonds Mfg Co., Lockport, N. Y.
 Vulcan Crucible Steel Co., Aliquippa, Pa.
 Ward's Sons, Edgar T., Philadelphia
 Wheelock, Lovejoy & Co., Boston

STEEL, Uranium

Latrobe Electric Steel Co., Latrobe, Pa.
 Standard Alloys Co., Pittsburgh

STEERING ENGINES

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Chase Machine Co., Cleveland
 Cunningham Co., Inc., Allan, 7500 Carlton Av., Seattle
 Dake Engine Co., Grand Haven, Mich.
 Diehl Manufacturing Co., Elizabeth, N. J.
 Edson Manufacturing Co., 257 Atlantic Av., Boston
 Evans & Co., C. H., 187 Fremont St., San Francisco
 Ford & Geirrine, San Francisco
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, see p. 30
 Hendy Iron Works, Joshua, San Francisco
 Hesse-Martin Iron Works, E. 8th & Taylor Sts., Portland, Ore.
 Hyde Windlass Co., Bath, Me.
 Lidgerwood Manufacturing Co., 96 Liberty St., New York

STERLING-COOPER CO., NEW YORK

Main Iron Works, 16th & Daggett Sts., San Francisco
 Maine Electric Co., Inc., The, 25-35 Commercial St.,
 Portland, Me.
 Mundy Hoisting Engine Co., J. S., Newark, N. J.

STEMS, Ship (See Stern Frames)

STERN FRAMES & TUBES

American Steel Foundries, Chicago
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Pacific Construction & Engr. Co., Seattle, Wash.
 Penn Seaboard Steel Corp, Franklin Trust Bldg., Phila-
 delphia, see p. 18

STOCKS & DIES (See Dies, Bolts, etc.)

STRAIGHT EDGES

Brown & Sharpe, Providence, R. I.
 Montgomery & Co., 105 Fulton St., New York
 Ruehle Co., E. G., 119 Fulton St., New York
 Warren-Knight Co., 136 N. 12th St., Philadelphia
 Williams & Wells Co., 248 Fulton St., New York

STRAINERS, Oil

Braun & Co., C. F., San Francisco
 Coen Co., The, San Francisco
 Elliott Co., Pittsburgh
 Griscom-Russell Co., The, 99 West St., New York, see p. 44
 Kieley & Moeller, Inc., 34 W. 13th St., New York
 Richardson-Phenix Co., The, Milwaukee, Wis., see pp.
 66 & 67
 Schutte & Koerting Co., Philadelphia
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Woolley & Co., E. L., Providence, R. I.

STRAINERS, Suction, Bronzed

Allen Fire Dept. Supply Co., 246 Greenwich St., New York
 Elkhart Brass Mfg Co., Elkhart, Ind.
 Farnan Brass Works, 1104 Centre St., Cleveland
 George & Co., G., 194 Front St., New York
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodyear Tire & Rubber Co., 123 W. 64th St., New York
 McNabb & Harlin, 55 John St., New York
 Morse & Sons, A. J., 221 High St., Boston
 Neptune Packing & Rubber Co., 253 Broadway, New York
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 New York Rubber Co., 84 Reade St., New York
 Rumsey Pump Co., Seneca Falls, N. Y.
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Wheaton Brass Works, A. W., Newark, N. J.
 White Mfg Co., J. H., 111 No. 3d St., Brooklyn, N. Y.
 Wing & Co., J. T., 19 Woodward Av., Detroit, Mich.
 Woodhouse Mfg Co., 50 W. Broadway, New York

SUPERHEATERS, Boiler

Babcock & Wilcox Co., The, 85 Liberty St., New York,
 See p. 7
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Foster Marine Boiler Corp, 111 Broadway, New York,
 see p. 9
 Heine Safety Boiler Co., St. Louis, Mo., see pp. 10 & 11
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Locomotive Superheater Co. (Fire Tube), 30 Church St.,
 New York
 New York Engineering Co., 2 Rector St., New York,
 see p. 12
 Power Specialty Co., 111 Broadway, New York, see p. 8
 Ward Engineering Works, The, Charleston, W. Va.

SURFACE PLATES

Brown & Sharpe, Providence, R. I.
 Chandler & Farquhar Co., 32 Federal St., Boston
 Fairbanks Co., 416 Broome St., New York
 Montgomery & Co., 105 Fulton St., New York
 Paxon Co., J. W., Philadelphia
 Pratt & Whitney, 111 Broadway, New York
 Watson, Frye & Co., Bath, Me.

SWABS, Deck, Cotton Twine

Atlanta Variety Works, Atlanta, Ga.
 Barry & Co., D. J., 54 Warren St., New York
 Benton Halliday & Co., 258 W. 30th St., New York
 Dearborn Duster Co., 550 W. Harrison St., Chicago
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58

Galbraith & Sons, C. C., 90 West St., New York
 Hoffman Corr Mfg Co., 594 Broadway, New York
 Patterson, Gottfried & Hunter Co., 211 Centre St., New
 York

Tate Manufacturing Co., 48 Hanover St., Boston

SWAGE BLOCKS, Blacksmith, Top & Bottom

Anderson Supply Co., N. H., Detroit, Mich.
 Beall Bros., East Alton, Ill.
 Champion Tool Co., Meadville, Pa.
 Cutter & Wood Supply Co., 68 Pearl St., Boston
 Flint & Chester, 2 South St., New York
 Hammacher, Schlemmer & Co., 4th Av. & 13th St., New
 York

Heller Bros., Newark, N. J.
 Iron City Tool Works, 32 & Smallman St., Philadelphia
 Machinists' Supply Co., Pittsburgh
 Vaughn & Bushnell, Chicago

SWITCHBOARDS

Benjamin Electric Mfg Co., Chicago
 Betts & Betts Corp, 511 W. 42d St., New York
 Chicago Switchboard Co., Chicago, Ill.
 Cleveland Switchboard Co., Cleveland
 Consolidated Electric Mfg Co., Philadelphia
 Crouse-Hinds Co., Syracuse, N. Y.
 Cutler-Hammer Mfg. Co., 50 Church St., New York, see
 p. 35

Electric Panelboard Co., Rochester, N. Y.
 Engberg's Electric & Mechanical Works, St. Joseph, Mich.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hart & Hegeman Manufacturing Co., Hartford, Conn.
 Johns-Manville Co., H. W., Madison Av. & 41st St., New
 York

Keystone Electric Mfg Co., Cleveland
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Mutual Electric & Machine Co., Detroit, Mich.
 Ne Page McKinney Co., Portland, Ore.
 Sterling Switchboard Co., Camden, N. J.
 Trumbull Electric Mfg Co., Plainville, Conn.
 Westinghouse Electric & Mfg Co., Pittsburgh

SWITCHES, Knife

Arnesen Electric Co., 109 Broad St., New York
 Crouse-Hinds Co., Syracuse, N. Y.
 Cutler-Hammer Mfg. Co., 50 Church St., New York, see
 p. 35

Fullerton Electric Co., 15 W. 20th St., New York
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Latham & Co., E. B., 550 Pearl St., New York
 Leonard Bundy Electric Co., The, Cleveland
 Metropolitan Electric Mfg Co., Long Island City, N. Y.
 Ostrander & Co., W. R., 371 Broadway, New York
 Philadelphia Electric Co., The, Philadelphia
 Trumbull Electric Mfg Co., Plainville, Conn.
 Trumbull-Vanderpool Electric Mfg Co., Bantam, Conn.
 Western Electric Co., 151 Fifth Ave., New York

SWITCHES, Oil

General Electric Co., Schenectady, N. Y., see pp. 36-41

SWITCHES, Snap

Bryant Electric Co., Bridgeport, Conn.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Hart Manufacturing Co., Hartford, Conn.

SWIVELS, Chain (See Chain, Ship Anchor)

American Chain Co., Inc., Bridgeport, Conn., see pp. 16
 & 17
 United States Chain & Forging Co., Union Arcade,
 Pittsburgh, See p. 15

SWIVELS, Mooring

Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 United States Chain & Forging Co., Union Arcade,
 Pittsburgh, See p. 15
 Williams & Co., J. H., 150 Hamilton Av., Brooklyn, N. Y.
 SYPHONS, Steam (See Ejectors, Water)

STERLING-COOPER CO., NEW YORK

T

TABLES, Steam (See Galley Equipment)**TACHOMETERS, Electric**

Electric Tachometer Corp, The, Philadelphia, see p. 103

TACHOMETERS, Hand, Portable

Biddle, James G., Philadelphia

Brown Instrument Co., Philadelphia

Electric Tachometer Corp, The, Philadelphia, see p. 103

Jones-Motrola, Inc., 29 W. 35th St., New York

Schaeffer & Budenburg Mfg Co., Brooklyn, N. Y.

Sticht & Co., Herman H., 15 Park Row, New York

TACHOMETERS, Vibrating

Biddle, James G., Philadelphia

TACKLE BLOCKS (See Also Blocks, Tackle)

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

Marine Decking & Supply Co., Philadelphia, See p. 6

Tiebout, W. & J., 118 Chambers St., New York, see p. 59

TAFFRAIL LOGS, Complete (See Also Logs, Taffrail)

Durkee & Co., Inc., Chas. D., 2 South St., New York, see p. 58

TALLYING REGISTERS (Coal, Cargo, etc.)

Keuffel & Esser Co., Hoboken, N. J.

Queen-Gray Co., 618 Chestnut St., Philadelphia

Sussfeld, Lorsch & Co., 90 Maiden Lane, New York

Warren-Knight Co., 136 N. 12th St., Philadelphia

TANKS, Copper

Badger & Sons Co., E. B., Boston

Oakland Copper & Brass Works, Oakland, Cal.

Smith Copper & Brass Works, C. W., San Francisco

Tragreser Steam Copper Wks, 447 W. 26th St., New York

TANKS, Gas (Hydrogen, Oxygen)

Harrisburgh Pipe & Bending Co., Harrisburg, Pa.

National Tube Co., Pittsburgh, Pa.

Welded Steel Barrel Corp., Detroit

(See also Cutting & Welding Supplies, Gas)

TANKS, Oil Storage, Galvanized

Bowser & Co., S. F., Fort Wayne, Ind.

Koven & Bro., L. O., 154 Ogden Av., Newark, N. J.

Richardson-Phenix Co., The, Milwaukee, Wis., see pp. 66 & 67

Scaife & Sons, Co., Wm. B., Pittsburgh

Standard Water System Co., Hamilton, N. J.

Tragreser Steam Cop Wks, John, 447 W. 26th St., New York

Wayne Oil Tank & Pump Co., Fort Wayne, Ind.

Wood Manufacturing Co., The, Conshohocken, Pa.

TANKS, Seamless Steel

National Tube Co., Pittsburgh

Pressed Steel Tank Co., Milwaukee, Wis.

TANKS, Small (See Drums, Paint)**TANKS, Welded or Riveted, Steel**

Air Tight Steel Tank Co., Pittsburgh

Cave Welding & Mfg Co., Springfield, Mass.

Cruse-Kemper Co., Ambler, Pa.

Koven & Brother, L. O., 154 Ogden Av., Newark, N. J.

Llewellyn Iron Works, Los Angeles

Main Iron Works, San Francisco

Penna. Furnace & Stove Co., Warren, Pa.

Phoenix Iron Works, Meadville, Pa.

Riverside Boiler Works, Inc., Cambridge, Mass.

Scaife & Sons Co., Wm. B., Oakmont, Pa.

Tippett & Wood, Phillipsburg, N. J.

Wood Mfg Co., The John, Conshohocken, Pa.

TAPE, Insulating, Asbestos

Arnussen Electric Co., Inc., 109 Broad St., New York

Johns-Manville Co., H. W., 41st St. & Madison Av., New York

Keasbey Co., Robt. A., 445 West St., New York

Mikesell Bros. Co., 176 N. La Salle St., Chicago

Standard Woven Fabric Co., Walpole, Mass.

**TAPE, Insulating, Cambric, Varnished
Cotton
Rubber**

Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

United States Rubber Co., 1790 Broadway, New York, see p. 57

(See also Insulation Electrical)

TAPE, Insulating, Linen

Garton Co., The W. R., Chicago

Hope Webbing Co., 396 Broadway, New York

Mikesell Bros., 176 N. La Salle St., Chicago

Mitchell-Rand Mfg Co., 99 John St., New York

Western Electric Co., 151 Fifth Av., New York

TAPE, Insulating, Mica

American Mica Co., Newton Lower Falls, Mass.

Dielectric Mfg Co., St. Louis, Mo.

Keene Mica Mfg Co., Keene, N. H.

Mitchell-Rand Mfg Co., 99 John St., New York

Wetmore-Savage Co., Boston

TAPS & DIES

American Tap & Die Co., Greenfield, Mass.

Bay State Tap & Die Co., Mansfield, Mass.

Blancke Co., Inc., L. C., 10 Thomas St., New York

Brubaker & Bros., W. L., Millersburg, Pa.

Butterfield & Co., Derby Line, Vt.

Card Mfg Co., S. W., Mansfield, Mass.

Gardner-Bryan Co., The, Cleveland

Greenfield Tap & Die Corp, Greenfield, Mass.

Pratt & Whitney, 111 Broadway, New York

Russell Mfg Co., Greenfield, Mass.

Standard Tool Co., Cleveland

Winter Bros. Co., Wrentham, Mass.

TAPS & DIES, Adjustable, Collapsing

Geometric Tool Co., The, New Haven, Conn.

Henes, Louis G., San Francisco

Modern Tool Co., Erie, Pa.

National Acme Co., The, New Haven, Conn.

Victor Tool Co., Inc., Waynesboro, Pa.

TARPAULINS (See Canvas Goods)**TEAKWOOD**

Dieckmann, Jr., J. H., San Francisco

East Asiatic Co., Ltd., Inc., San Francisco

Elias & Bro., G., 965 Elk St., Buffalo, N. Y.

Hawes & Co., Willard, 7th St. & E. R., New York

Kalt Lumber Co., 324 E. 64th St., New York

Monteath Co., J. H., 202 Lewis St., New York

Mosson Co., M., 558 Flushing Av., Brooklyn, N. Y.

National Timber Co., Mobile, Ala.

Wyatt-Prock Lumber Co., Philadelphia

TELEGRAPHS, Anchoring

Engine

Docking

Fireroom, etc.

Chadburn Ship Telegraph Co. of America, Troy, N. Y.

Cory & Son, Inc., Chas., 183 Varick St., New York

Elmers & Co., J. O., 517 So. Peters St., New Orleans, La.

Hamilton & Hansell, 13 Park Row, New York

Horne Manufacturing Co., 2 College Place, Brooklyn, N. Y.

Polk, R. C., Perkins Bldg., Tacoma, Wash.

TELEGRAPHS, Engine

Arma Engineering Co., 228 40th St., Brooklyn, N. Y.

Arnussen Electric Co., 109 Broad St., New York

Bunnell & Co., J. H., 32 Park Place, New York

Butte Engineering & Electric Co., San Francisco

Central Electric Co., Chicago

Cory & Son, Inc., Chas., 183 Varick St., New York

Henschel & Co., Inc., C. J., 111 Dobbin St., Bklyn., N. Y.

Horne Mfg Co., College Place, Brooklyn, N. Y.

Klaxon Co., Industrial Div., 1 Madison Av., New York

Manhattan Electrical Supply Co., 17 Park Row, New York

Tideman Electric Mfg Co., Menominee, Mich.

TELEMOTORS

American Engineering Co., Philadelphia
 Benson Electric Co., 233 Broadway, New York
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.,
 see p. 100
 Cunningham Co., Inc., Allan, Seattle, Wash.
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, see p. 30
 Herzog Electric & Engineering Co., San Francisco
 Hyde Windlass Co., Bath, Me.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York,
 see pp. 92 & 93
 Maine Electric Co., Portland, Me.

TELEPHONE SYSTEMS, Ship

Arma Engineering Co., 228 40th St., Brooklyn, N. Y.
 Callaphone Co. of N. Y., 151 Grand St., New York
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Ford & Geirrine, San Francisco
 Holtzer-Cabot Electric Co., 125 Amory St., Boston
 Magnavox Co., The, Oakland, Cal.
 Marine Electric Co., San Francisco
 Western Electric Co., 151 Fifth Av., New York

TELLTALE, Shaft

Cummings Ship Instrument Works, 10 High St., Boston,
 see p. 104

TEMPERATURE CONTROLLERS

Sarco Co., Inc., 233 Broadway, New York, see p. 130

TEMPERATURE INDICATORS

Bristol Co., Waterbury, Conn.
 Brown Instrument Co., Wayne & Windrim, Philadelphia
 Cory & Son Co., Chas., 183 Varick St., New York
 Foxboro Co., Inc., Foxboro, Mass.
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Schaeffer & Budenberg Mfg Co., 338 Berry St., Bklyn, N. Y.
 Schneider Bros. Inst. Co., Inc., 350 Palisade Av., Jersey
 City, N. J.
 Weil & Co., J. H., 1304 Arch St., Philadelphia

TEMPERATURE REGULATORS

Sarco Co., Inc., 233 Broadway, New York, see p. 130

THERMOMETERS

Berg Mfg Co., Jas., 3707 Twelfth Av., Brooklyn, N. Y.
 Bristol Co., The, Waterbury, Conn.
 Brown Instrument Co., Philadelphia
 Hohmann & Maurer Mfg Co., 31 Union Square, New York
 Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Precision Thermometer & Inst. Co., Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Schaeffer & Budenberg Mfg Co., Brooklyn, N. Y.
 Tagliabue Mfg Co., C. J., Brooklyn, N. Y.
 Taylor Instrument Cos., Rochester, N. Y.
 Weinhausen, H., 159 Leonard St., New York

THERMOSTATS

American Thermostat Co., Elmira, N. Y.
 Beers Bros., Thermostat Co., Rochester, N. Y.
 Howard Thermostat Co., Oswego, N. Y.
 Jewell Manufacturing Co., Auburn, N. Y.
 Johnson Service Co., Milwaukee, Wis.
 Lovell & Co., F. H., Arlington, N. J.
 Precision Thermometer & Inst. Co., 1434 Brandywine St.,
 Philadelphia
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Robertshaw Manufacturing Co., Youngwood, Pa.
 Sarco Co., Inc., 233 Broadway, New York, see p. 130
 Schaeffer & Budenberg Mfg Co., 338 Berry St., Bklyn.,
 N. Y.
 Tagliabue Mfg Co., C. J., 18 33d St., Brooklyn, N. Y.

THREADING MACHINES, Pipe (See Cutting & Threading Machine Pipe)**THRUST BEARINGS (See Bearings, Thrust)****TILING, Composition**

Linotol Flooring Co., 15 Whitehall St., New York, see
 p. 31
 Marine Decking & Supply Co., Philadelphia, see p. 6
 (See also Composition Decking)

TILING, Rubber

New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57

TIME FIRING APPARATUS, Boiler

Brock, Jr., Tool & Mfg Wks., Arthur, 533 N. 11th St.,
 Philadelphia
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Queen-Gray Co., 618 Chestnut St., Philadelphia
 Scientific Utilities Co., Inc., 18 E. 16th St., New York
 Sperry Gyroscope Co., Brooklyn, N. Y.

TIN, Ingot

Bruce & Cook, 190 Water St., New York
 Chadwick Boston Lead Co., 163 Congress St., Boston
 Chicago Solder Co., 218 N. Union Av., Chicago
 Eagle Smelting & Refining Wks., 233 Broadway, New York
 Great Western Smelting & Refining Co., Chicago
 Larkin & Co., J. K., 34 Reade St., New York
 Michigan Smelt. & Refin. Co., 30 Church St., New York
 Nassau Smelt. & Refin. Co., 603 W. 29th St., New York
 No. Atlantic Metal Corp., 29 Broadway, New York
 Pope Metals Co., 90 West St., New York
 Robertson Lead Co., James, 827 Howard St., Baltimore
 Rochester Lead Mfg Co., Rochester, N. Y.
 Sandoval Zinc Co., Chicago, Ill.
 Seligman, Arthur, 165 Broadway, New York
 Standard Smelt. & Refin. Co., 547 W. 21st St., New York
 Trotter & Co., Nathan, 36 N. Front St., Philadelphia

TIN, Phosphor

Empire Metal Co., Syracuse, N. Y.
 United American Metals Corp., Brooklyn, N. Y.

TIN, Sheet

American Sheet & Tinplate Co., Frick Bldg., Pittsburgh
 Brown-Wales Co., Boston
 Bruce & Cook, 190 Water St., New York
 Carnahan Tinplate & Sheet Co., Canton, Ohio
 Grant, Robert, 233 Broadway, New York
 Merchant & Evans, Philadelphia
 Standard Tinplate Co., Canonsburg, Pa.
 Trumbull Steel Co., Warren, Ohio

TOILET FIXTURES, Bath & State Room

American Ring Co., Waterbury, Conn.
 Art Brass Co., 299 E. 134th St., New York
 Beith & Reilly 2475 3d Av., New York
 Blickman, S., 199 Lafayette St., New York
 Champion Hardware Co., Geneva, Ohio
 Columbus Brass Co., Columbus, Ohio
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 DuBois Co., Inc., F. N., 247 9th Av., New York
 Federal Huber Co., 234 N. Halstead St., Chicago
 Gould-Mercereau Co., 52 W. 38th St., New York
 Haines, Jones & Cadbury, 1136 Ridge Av., Philadelphia
 Johnson Co., Inc., J. D., 43 Boerum Pl., Brooklyn, N. Y.,
 see p. 70
 Judd & Co., H. L., 87 Chambers St., New York
 Lehnert & Webb, 755 Peoples Gas Bldg., Chicago
 Lehnert & Co., 334 E. 23d St., New York
 McCambridge Co., Philadelphia
 Messer Co., William, 27 Suffolk St., New York
 Mott Iron Works, J. L., Trenton, N. J.
 Parker Co., Chas., Meriden, Conn.
 Reliance Metal Spinning & Stamping Co., 160 John St.,
 Brooklyn, N. Y.
 Sands & Son, A. B., 20 Vesey St., New York
 Sanitary Specialty Co., 1836 E. Clearfield St., Philadelphia
 Sanitas Manufacturing Co., 48 Union St., Boston
 Schaffer Co., Chas. W., 3214 Chestnut St., Philadelphia
 Smith Mfg Co., E. C., 120 N. Union Av., Chicago
 Stand. Plumb. Supply Co., 818 St. Ann's Av., New York
 Walker Mfg & Supply Co., 61 Woodbridge St., Detroit

TONGS, Blacksmiths, Flat Jaw, Straight Lip
 Anderson Supply Co., N. H., Detroit, Mich.
 Beall Bros., E. Alton, Ill.
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Flint & Chester, 2 South St., New York

Hammacher, Schlemmer & Co., 133 4th Av., New York
 Heller Bros., Newark, N. J.
 Iron City Tool Works, Pittsburgh
 Leibfried, J. J., 97 Guernsey St., Brooklyn, N. Y.
 Vulcan Tool Co., Quincy, Mass.
 Warren Tool & Forge Co., Warren, Ohio

TONGS, Rivet

Beall Bros., East Alton, Ill.
 Cutter & Woods Supply Co., 68 Pearl St., Boston
 Duffy Manufacturing Co., 214 W. Grand Av., Chicago
 Flint & Chester, 2 South St., New York
 Frank, Jr., Henry, 372 Hudson St., New York
 Hammacher, Schlemmer & Co., 4th Av., & 13th St., New York

Heller Bros., Newark, N. J.
 Iron City Tool Works, Pittsburgh, Pa.
 Leibfried, J. J., Guernsey St., Brooklyn, N. Y.
 McWilliams & Sons, John, Jersey City, N. J.
 Oliver Iron & Steel Co., Pittsburgh, Pa.
 Phillips & Son, F., Baltimore, Md.
 Pollard, Joseph, 141 Raymond St., Brooklyn, N. Y.
 Scully Steel & Iron Co., Chicago, Ill.
 Success Manufacturing Co., Gloucester, Mass.
 Topping Bros., 122 Chambers St., New York
 Warren Tool & Forge Co., Warren, Ohio

TOOL HOLDERS (See Holders, Tool)**TOOL STEEL (See Steel, Tool)****TORCHES, Gasoline**

Cutter & Woods Supply Co., 68 Pearl St., Boston
 Flint & Chester, 2 South St., New York
 Hill Brunner Foundry & Supply Co., Cincinnati
 Standard Sanitary Mfg Co., Pittsburgh
 Standard Plumbing Supply Co., St. Ann's Av. & 159th St., New York
 Volcano Torch & Mfg Co., Erie, Pa.

TORCHES, Hand Welding (See also Cutting & Welding Equipment, Gas)

Bastian-Blessing Co., 125 W. Austin Av., Chicago

TORSION METERS

Cummings Ship Instrument Works, 10 High St., Boston, see p. 104

TOW LINES, Hemp

American Mfg. Co., Noble & West Sts., Brooklyn, N. Y.
 Granger Co., Inc., George B., 162 Front St., New York
 Kelly Co., The Henry Co., Xenia, Ohio
 Macwhyte Co., Kenosha, Wis.
 New Bedford Cordage Co., 120 Broadway, New York
 Pacific Net & Twine Co., Seattle
 Plymouth Cordage Co., No. Plymouth, Mass.
 Wall Rope Mfg Co. of New York, 48 South St., New York
 Waterbury Co., World Bldg., New York
 Whitlock Cordage Co., 46 South St., New York, see p. 27
 Woodward, Wight & Co., New Orleans, La.

TOWING COMPANIES (See Port Data Section)

United Marine Contracting Corp., 15 Whitehall St., New York, see p. 128

TOWING ENGINES

American Engineering Co., Philadelphia
 Chase Machine Co., Cleveland
 Dake Engine Co., Grand Haven, Mich.
 Diehl Manufacturing Co., Elizabeth, N. J.
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, see p. 30
 Hyde Windlass Co., Bath, Me.
 Lidgerwood Mfg Co., 96 Liberty St., New York
 Mundy Hoisting Engine Co., J. S., Newark, N. J.

TOWING GEAR, Wire

American Steel & Wire Co., Chicago
 Macwhyte Co., Kenosha, Wis.
 Roebling's Sons Co., J. A., Trenton, N. J.

TRACING CLOTH

Keystone Blue Print Paper Co., Philadelphia
 National Tracing Cloth Co., Saylesville, R. I.
 Old Dominion Paper Co., Norfolk, Va.
 Pease & Co., C. F., Chicago

Post Co., The Frederick, Chicago
 Technical Supply Co., Scranton, Pa.

TRAILERS, Motor Truck, Industrial

Erie Trailer Mfg Co., Erie, Pa.
 Lakewood Engineering Co., The, Berea Rd., Cleveland
 Mercury Manufacturing Co., Chicago
 Ohio Trailer Co., Cleveland
 Warren & Jorgang Co., The, Springfield, Mass.

TRANSFORMERS, Electric

Burke Electric Co., Erie, Pa.
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Cutler-Hammer Mfg. Co., 50 Church St., New York, see p. 35
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Wagner Electric Mfg Co., St. Louis, Mo.
 Westinghouse Electric & Mfg Co., Pittsburgh

TRAPS, Ball Float Steam

American Steam Gauge & Valve Mfg Co., Boston
 Anderson Co., V. D., The, Cleveland
 D'Este Co., Julian, Boston
 Johns-Manville Co., H. W., 296 Madison Av., New York
 Watson & McDaniels Co., Philadelphia
 Wright-Austin Co., Detroit

TRAPS, Bucket Steam

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Garrett & Co., W. D., 118 E. 28th St., New York
 Kieley & Mueller, Inc., 34 W. 13th St., New York
 Strong, Carlisle & Hammond Co., The, Cleveland

TRAPS, Expansion, Steam

Illinois Engineering Co., Chicago
 Ohio Blower Co., Cleveland
 Sarco Co., Inc., 233 Broadway, New York, see p. 130

TRAPS, Radiator

Sarco Co., Inc., 233 Broadway, New York, see p. 130

TRAPS, Steam, Unclassified

American Steam Gauge & Valve Co., Boston
 Anderson Co., V. D., The, Cleveland
 Armstrong Machine Works, Three Rivers, Mich.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Fisher Governor Co., 201 S. First Av., Marshalltown, Ia.
 Johns-Manville Co., H. W., Madison Av. & 41st St., New York
 Kieley & Mueller, 34 W. 13th St., New York
 Lytton Manufacturing Corp., Franklin, Va.
 Ohio Blower Co., Cleveland
 Sarco Co., Inc., 233 Broadway, New York, see p. 130
 Strong, Carlisle & Hammond Co., Cleveland
 Watson & McDaniel Co., 146 N. 7th St., Philadelphia
 Wright-Austin Co., 30 Church St., Detroit, Mich.

TREADS, Safety

American Mason Safety Tread Co., Lowell, Mass.
 American Abrasive Metal Co., 50 Church St., New York
 Universal Safety Tread Co., Boston

TREENAILS

Hoskins Lumber Co., J. S., Baltimore
 Kells Mills & Lbr. Co., Java & Provost Sts., Bklyn, N. Y.
 Kidder, G. W., Staatsburg, N. Y.

TRUCKS, Elevating

Baker R. & L. Co., The (Hoist), Cleveland
 Barrett-Cravens Co., Chicago
 Chesnutt Manufacturing Co., Kansas City, Mo.
 Cowan Truck Co., Holyoke, Mass.
 Lewis-Shepard Co., Boston
 National Scale Co., Chicopee Falls, Mass.
 Stuebing Truck Co., Cincinnati

TRUCKS, Industrial

Baker R. & L. Co., The (Hoist), Cleveland
 Elwell-Parker Electric Co., Cleveland
 Hunt Co., Inc., C. W., West New Brighton, Staten Island, N. Y.
 Stuebing Truck Co., Cincinnati
 Townmotor Co., Cleveland
 Union Steel Products Co., Ltd., Albion, Mich., see p. 2

STERLING-COOPER CO., NEW YORK

TUBE CLEANERS, Rotary

Chesterton Co., A. W., Boston
 Lagonda Manufacturing Co., The, Springfield, Ohio
 Liberty Manufacturing Co., Pittsburgh
 Pierce Co., Wm. B., Buffalo
 Pilley Packing & Flue Brush Mfg Co., St. Louis, Mo.
 Poole Manufacturing Co., Inc., Louisville, Ky.
 Roto Co., The, Hartford, Conn.
 (See also *Brushes, Wire*)

TUBE EXPANDERS (See Boiler Tube Expanders)**TUBES, Boiler (See Boiler Tubes)****TUBES, Sounding Machine**

Moeller, A. E., 261 Sumpter St., Brooklyn, N. Y.
 Negus, T. S. & J. D., 140 Water St., New York
 (See also *Sounding Machines*)

TUBES, Various Metals (See Pipes)**TUBES, Voice (See Voice Tubes)****TUBING, Admiralty Metal**

Baltimore Tube Co., Baltimore
 Delaware Seamless Tube Co., Auburn, Pa.
 Standard Underground Cable Co., Pittsburgh
 Ward's Sons, Edgar T., Philadelphia
 Wheeler Condenser & Engineering Co., Carteret, N. J.,
 see p. 23
 (See also *Condenser Tubes*)

TUBING, Insulation (See Various Insulating Materials)**TUBING, Rubber, Hard (See Rubber Hard)****TUBING, Rubber, Soft, Plain**

Belmont Packing & Rubber Co., 30 Church St., New York
 Boston Woven Hose & Rubber Co., Cambridge, Mass.
 Dominion Asbestos & Rubber Works, 154 Nassau St.,
 New York
 Empire Rubber & Tire Co., Trenton, N. J.
 Goodall Rubber Co., Inc., Philadelphia, see p. 54
 Goodrich Co., B. F., Akron, Ohio
 Goodyear Tire & Rubber Co., 123 W. 64th St., New York
 Judd & Leland Mfg Co., Clifton Springs, N. Y.
 New York Belting & Packing Co., 91 Chambers St.,
 New York, see p. 55
 Quaker City Rubber Co., Philadelphia
 United States Rubber Co., 1790 Broadway, New York,
 see p. 57
 Voorhees Rubber Mfg Co., Jersey City, N. J.

TUMBLING BARRELS

American Foundry Equipment Co., New York
 Henderson Bros. Co., The, Waterbury, Conn.
 Ideal Concrete Machinery Co., The, Cincinnati
 Whiting Foundry & Equipment Co., Harvey, Ill.

TURBINES, Auxiliary Machinery Drive

Alberger Pump & Condenser Co., 140 Cedar St., New York
 Allis-Chalmers Mfg Co., Milwaukee, Wis.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 De Laval Steam Turbine Co., Trenton, N. J., see pp.
 106 & 107
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Moore Steam Turbine Corp, Philadelphia
 Steam Motors Co., 8 W. 40th St., New York
 Sturtevant Co., B. F., Hyde Park, Boston, see pp. 108
 & 109
 Terry Steam Turbine Co., The, Hartford, Conn., see p. 110
 (See also *Turbines, Propelling*)

TURBINES, Propelling

Bath Iron Works, Bath, Me.
 Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Cramp & Sons Ship & Engine Building Co., Wm., Phila-
 delphia
 De Laval Steam Turbine Co., Trenton, N. J., see pp.
 106 & 107
 Fletcher Co., W. & A., Hoboken, N. J.
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Hallidie Co., Spokane, Wash.
 Kerr Turbine Co., Wellsville, N. Y.

Parsons Steam Turbine Co., Ltd., The, 2 Rector St., New
 York, see p. 105

Poole Engineering & Mach. Co., Baltimore
 Vulcan Iron Works, Inc., Jersey City, N. J.
 Westinghouse Electric & Mfg Co., Pittsburgh

TURNBUCKLES

American Forging Co., Birmingham, Ala.
 Channon Mfg Co., Jas. H., Chicago
 Dietrich Bros., Baltimore
 Durkee & Co., Inc., Chas. D., 2 South St., New York,
 see p. 58
 Larkin & Co., J. K., 253 Broadway, New York
 Laughlin Co., The Thos., 143 Fore St., Portland, Me.
 Marine Hardware Equipment Co., So. Portland, Me.
 Merrill Bros., Maspeth, N. Y.
 Moon & Co., Geo. C., Garwood, N. J.
 Republic Iron & Steel Co., Philadelphia
 Rhode Island Tool Co., Providence, R. I.
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59

TWINE

Pacific Net & Twine Co., Seattle, Wash.
 Portland Cordage Co., Portland, Ore.
 Whitlock Cordage Co., 46 South St., New York, see p. 27
 Woodward, Wight & Co., Ltd., New Orleans

TWIST DRILLS (See Drills, Twist)

U

UNIONS, Pipe (See Pipe Fittings Desired)**UPHOLSTERY MATERIAL**

Duratex Co., The, Newark, N. J.
 (See also *Leather, Upholstery*)

UPHOLSTERY

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
 see p. 100
 Cornell Emery Co., 25 W. Broadway, New York
 Sloane, W. & J., Fifth Av., & 47th St., New York

V

VACUUM GAGES (See Gages, Steam Pressure)**VALVE RESEATING MACHINES**

Leavitt Machine Co., The, 70 East River St., Orange,
 Mass., see pp. 125-127

VALVE SPRINGS (See Springs, Valve)**VALVES, Ammonia & CO₂**

Brunswick Refrigerating Co., New Brunswick, N. J.,
 see p. 95
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Vilter Manufacturing Co., Milwaukee, Wis.
 Vogt Machine Co., Henry, Louisville, Ky.
 York Manufacturing Co., York, Pa., see p. 98

VALVES, BACK PRESSURE

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Ford Co., The Thomas P., 407 Broome St., New York
 Foster Engineering Co., Newark, N. J.
 Illinois Engineering Co., Chicago
 Nelson Valve Co., Philadelphia
 Schutte & Koerting Co., Philadelphia
 Scott Valve Mfg Co., Detroit, Mich.

VALVES, BLOW-OFF, Boiler

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crosby Steam Gage & Valve Co., Boston
 Homestead Valve Mfg Co., Pittsburgh

STERLING-COOPER CO., NEW YORK

Illinois Engineering Co., Chicago
 Kelly & Jones Co., The, Greensburg, Pa.
 Williams Valve Co., The D. T., Cincinnati
 Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill,
 Philadelphia, see p. 124

VALVES, CHECK, Lift & Swing

Coffin Valve Co., Dorchester, Mass.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Edward Valve & Mfg Co., The, Chicago
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Ludlow Valve Mfg Co., Troy, N. Y., see p. 123
 Lunkenheimer Co., The, Cincinnati
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Pratt & Cady Co., Inc., Hartford, Conn.
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Williams Valve Co., The D. T., Cincinnati

VALVES, COCKS (See Cocks, Subhead)

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Merrill Co., The, San Francisco

VALVES, GATE, Composition, Standard & Extra Heavy, Rising & Non-Rising Stem

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Darling Valve & Mfg Co., Williamsport, Pa.
 Ford & Geirrine, San Francisco
 Jarecki Manufacturing Co., Erie, Pa.
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Ludlow Valve Mfg Co., Troy, N. Y., see p. 123
 Lunkenheimer Co., The, Cincinnati
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Pratt & Cady Co., Inc., Hartford, Conn.
 Schutte & Koerting Co., Philadelphia
 Scott Valve Mfg Co., Detroit
 Williams, William E., 62 Front St., New York
 Williams Valve Co., The D. T., Cincinnati

VALVES, GATE, Iron Body, Standard & Extra Heavy, Rising & Non-Rising Stem

Coffin Valve Co., Dorchester, Mass.
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Darling Valve & Mfg Co., Williamsport, Pa.
 Homestead Valve Mfg Co., Pittsburgh
 Jarecki Manufacturing Co., Erie, Pa.
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Ludlow Valve Mfg Co., Troy, N. Y., see p. 123
 Lunkenheimer Co., The, Cincinnati
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Pratt & Cady Co., Inc., Hartford, Conn.
 Schutte & Koerting Co., Philadelphia
 Scott Valve Mfg Co., Detroit, Mich.
 Williams, William E., 62 Front St., New York
 Williams Valve Co., The D. T., Cincinnati

VALVES, GATE, Steel & Semi-Steel (See Valves, Gate, Iron)

VALVES, GLOBE, ANGLE & CROSS, Composition Stop & Screw Down Check

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Edward Valve & Mfg Co., The, Chicago
 Ford & Geirrine, San Francisco
 Jarecki Manufacturing Co., Erie, Pa.
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Lunkenheimer Co., The, Cincinnati
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Powell Co., The Wm., Cincinnati
 Pratt & Cady, Inc., Hartford, Conn.
 Schutte & Koerting Co., Philadelphia
 Williams, William E., 62 Front St., New York
 Williams Valve Co., The D. T., Cincinnati

VALVES, GLOBE, ANGLE & CROSS, Iron, Standard

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Edward Valve & Mfg Co., The, Chicago
 Homestead Valve Mfg Co., Pittsburgh
 Jarecki Manufacturing Co., Erie, Pa.
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Lunkenheimer Co., The, Cincinnati

Nelson Valve Co., Chestnut Hill, Philadelphia
 Powell Co., William, Cincinnati
 Pratt & Cady Co., Inc., Hartford, Conn.
 Schutte & Koerting Co., Philadelphia
 Williams, William E., 62 Front St., New York

VALVES, GLOBE, ANGLE & CROSS, Steel, Extra Heavy

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Edward Valve & Mfg Co., The, Chicago
 Homestead Valve Mfg Co., Pittsburgh
 Jarecki Manufacturing Co., The, Erie, Pa.
 Jenkins Bros., 80 White St., New York
 Kelly & Jones Co., The, Greensburg, Pa.
 Lunkenheimer Co., The, Cincinnati
 Nelson Valve Co., Chestnut Hill, Philadelphia
 Powell Co., William, Cincinnati
 Schutte & Koerting Co., Philadelphia

VALVES, Hose

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Jenkins Bros., 80 White St., New York
 Lunkenheimer Co., Cincinnati

VALVES, HYDRAULIC

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Homestead Valve Mfg Co., Pittsburgh
 Jarecki Manufacturing Co., Erie, Pa.
 Pittsburgh Valve, Fdry & Construction, Co., Pittsburgh
 Schutte & Koerting Co., Philadelphia
 Wood & Co., R. D. (Manifolds), 400 Chestnut St., Phila-
 delphia
 Yarnall-Waring Co., 100 Mermaid Av., Chestnut Hill,
 Philadelphia, see p. 124
 (See also Accumulators, Hydraulic)

VALVES, MAIN INJECTION

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

VALVES, MANIFOLD

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

VALVES, OVERBOARD DISCHARGE

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

VALVES, PRESSURE REGULATING (See Also Pres- sure Regulators)

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Leslie Co., The, Lyndhurst, N. J., see p. 122

VALVES, PUMP (See Pump Valves)

VALVES, RADIATOR

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Dole Valve Co., The, Chicago
 Illinois Engineering Co., Chicago
 Michigan Lubricator Co., 657 Beaubien St., Detroit

VALVES, REDUCING

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 D'Este Co., Julian, Boston
 Illinois Engineering Co., Chicago
 Leslie Co., The, Lyndhurst, N. J., see p. 122
 Mason Regulator Co., Boston
 Schutte & Koerting Co., Philadelphia
 Standard Steam Specialty Co., The, 542 W. Broadway,
 New York
 Wheeler Mfg Co., C. H., Philadelphia, see pp. 24 & 25
 Witt Co., G. E., San Francisco

VALVES, RELIEF, Cylinder Drain

Ashton Valve Co., The, 161 First St., Cambridge, 41,
 Mass., see p. 111

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Crosby Steam Gauge & Valve Co., Boston
 Dew Valve Co., The, 149 Broadway, New York

VALVES, RELIEF, Steam, Water & Oil

American Steam Gauge & Valve Mfg Co., Boston
 Ashton Valve Co., The, 161 First St., Cambridge, 41,
 Mass., see p. 111

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

Crosby Crosby Steam Gauge & Valve Co., Boston
 Foster Engineering Co., Newark, N. J.
 H. S. B. W.-Cochrane, Inc., 3140 N. 17th St., Philadelphia
 Lonergan Co., J. E., Philadelphia

STERLING-COOPER CO., NEW YORK

Standard Steam Specialty Co., The, 542 W. Broadway,
New York
Star Brass Mfg Co., Boston

VALVES, SAFETY, Single & Twin & Duplex Boiler

American Steam Gauge & Valve Mfg Co., Boston
Ashton Valve Co., The, 161 First St., Cambridge, 41,
Mass., see p. 111

Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Crosby Steam Gauge & Valve Co., Boston
Lonergan Co., J. E., Philadelphia
Star Brass Mfg Co., Boston

VALVES, Sluice Gate, Large (Power Operated for Dry Docks, etc.)

Coffin Valve Co., Dorchester, Mass.
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

VALVES, THROTTLE & MANEUVERING (See Engine or Turbine Manufacturers)

VARNISH, Insulating

Berry Bros., Detroit, Mich.
Calman & Co., Emil, 100 William St., New York
General Electric Co., Schenectady, N. Y., see p. 36-41
Glidden Co., Cleveland
Paraffine Cos., Inc., 34 1st St., San Francisco
Republic Varnish Co., 201 Thomas St., Newark, N. J.
Sherwin-Williams Co., Cleveland
Standard Paint Co., Woolworth Bldg., New York
Standard Varnish Works, 90 West St., New York
Sterling Varnish Works, Fulton Bldg., Pittsburgh

VARNISHERS

Marine Decking & Supply Co., Philadelphia, see p. 6
Masury & Son, John W., Brooklyn, N. Y., see p. 69
(See also Paint, Subhead)

VENTILATORS

Bethlehem Shipbuilding Corp, Ltd., Bethlehem, Pa.,
see p. 100
Eagle Brass Foundry Co., Seattle, Wash.
Kainer & Co., Chicago
Kirk & Blum Mfg Co., Cincinnati
Main Iron Works, San Francisco
Ohio Body & Blower Co., Cleveland

VENTILATORS, Small

Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58
Tiebout, W. & J., 118 Chambers St., New York, see p. 59
(See also Cows, Ventilating)

VISCOSIMETERS

Bausch & Lomb Optical Co., Rochester, N. Y.
Tagliabue Mfg Co., C. J., 18 33d St., Brooklyn, N. Y.

VICES, Bench

Athol Machine Co., Athol, Mass.
Eagle Anvil Works, Trenton, N. J.
Hammacher, Schlemmer & Co., 133 4th Av., New York
New Britain Machine Co., New Britain, Conn.
Reed Manufacturing Co., Erie, Pa.
Warren Tool & Forge Co., The, Warren, Ohio
Western Tool & Mfg Co., Springfield, Ohio
Yost Manufacturing Co., Meadville, Pa.

VICES, Machine Tool

Brown & Sharpe Co., Providence, R. I.
Cincinnati Milling Machine Co., Cincinnati
Greenfield Tap & Die Corp., Greenfield, Mass.
Nestor Manufacturing Co., Inc., 40 W. 13th St., New York
Pratt & Whitney, 111 Broadway, New York
Skinner Chuck Co., The, New Britain, Conn.
Sprague-Hayes Mfg Co., Detroit, Mich.
Western Tool & Mfg Co., Springfield, Ohio

VICES, Pipe

Athol Machine Co., Athol, Mass.
Butterfield & Co., Derby Line, Vt.
Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
Greenfield Tap & Die Corp., Greenfield, Mass.
Jarecki Manufacturing Co., Erie, Pa.
Mark Manufacturing Co., Chicago
Oster Manufacturing Co., Cleveland

Reed Manufacturing Co., Erie, Pa.
Saunders Sons, D., Yonkers, N. Y.
Western Tool & Mfg Co., Springfield, Mass.
Williams & Co., J. H., 150 Hamilton Av., Bklyn., N. Y.

VOICE TUBE FITTINGS

Bodler, Frank F., San Francisco
Cory & Son, Inc., Chas., 183 Varick St., New York
Durkee & Co., Inc., Chas. D., 2 South St., New York,
see p. 58
Horne Manufacturing Co., Mercer & Colgate Sts., Jersey
City, N. J.
Keesey, J. A., Brooklyn, N. Y.
Rostand Manufacturing Co., Milford, Conn.
(See also Voice Tubes)

VOICE TUBES, Metal

American Brass Co., Waterbury, Conn.
American Tube Works, Boston
Baltimore Tube Co., 30 Church St., New York
Chass Rolling Mill Co., Waterbury, Conn.
Cory & Son, Inc., Chas., 183 Varick St., New York
Horne Mfg Co., Mercer & Colgate Sts., Jersey City, N. J.
Hungerford Brass & Copper Co., U. T., 76 Lafayette St.,
New York
Jolley & Co., J. H., 42 N. 5th St., Philadelphia
Larkin & Co., J. K., 253 Broadway, New York
Marwedel, C. W., San Francisco
Merchant & Evans, Philadelphia
National Brass & Copper Tube Co., 41 Park Row, New
York
Rostand Manufacturing Co., Bridgeport, Conn.
Standard Underground Cable Co., Pittsburgh

VOICE TUBES, Rubber, Flexible

Goodall Rubber So., Inc., Philadelphia, see p. 54
New York Belting & Packing Co., 91 Chambers St.,
New York, see p. 55
United States Rubber Co., 1790 Broadway, New York,
see p. 57

VOLTMETERS

Biddle, James G., Philadelphia
Bristol Co., The, Waterbury, Conn.
Brown Instrument Co., The, Philadelphia
General Electric Co., Schenectady, N. Y., see p. 36-41
Jewell Electrical Instrument Co., Chicago
Roller-Smith Co., 233 Broadway, New York
Western Electric Co., 151 Fifth Av., New York
Weston Electrical Instrument Co., Newark, N. J.

W

WASHERS, Copper (See Gaskets, Copper)

WASHERS, Fibre

Fibre Finishing Co., 73 Tremont St., Boston, 9, Mass.,
see p. 53
Gasket Supply Co., Philadelphia
Klenck Co., F. J., San Francisco
U. S. Indestructible Gasket Co., 50 Church St., New York

WASHERS, Fibre, Vulcanized

American Vulcanized Fibre Co., Wilmington, Del.
Diamond State Fibre Co., Bridgeport, Pa.
Johns-Manville Co., H. W., 41st St. & Madison Av., New
York

WASHERS, Iron & Steel

Bosworth, Ard Machine & Fdry Co., Anniston, Ala.
Cleveland Wrought Products Co., The, Cleveland
Columbus Bolt Works, The, Columbus, Ohio
Joliet Wrought Washer Co., Joliet, Ill.
Milton Manufacturing Co., The, Milton, Pa.
Topping Bros., 122 Chambers St., New York
Upon Nut Co., The, Cleveland
Worcester Pressed Steel Co., Worcester, Mass.
Wrought Washer Mfg Co., Milwaukee, Wis.

WASHERS, Lock

Hobbs Manufacturing Co., Worcester, Mass.
Mansfield Lock Washer Co., The, Mansfield, Ohio

National Lock Washer Co., 65 Johnson St., Newark, N. J.
 National Umbrella Frame Co., Philadelphia
 Positive Lock Washer Co., Newark, N. J.
 Reliance Manufacturing Co., The, Massillon, Ohio

WASTE, Cotton

Frankford Waste Co., Frankford, Philadelphia
 Hoffman-Corr Mfg Co., Philadelphia
 Riverside Mills, Augusta, Ga.
 Royal Manufacturing Co., Rahway, N. J.
 Sibbett Co., W. R., Oakland, Cal.
 South Atlantic Waste Co., Charlotte, N. C.
 Springfield Waste Co., Springfield, Mass.
 Sweetland Waste Co., Inc., South Boston, Mass.
 Textile By-Products Corp., 46 Exchange Place, New York
 Winne & Son, Frank W., Philadelphia

WATER COLUMNS (See Also Gages, Water)

Ashton Valve Co., The, 161 First St., Cambridge, 41, Mass., see p. 111
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121

WATER COLUMNS, Safety (See Alarms, Low Water)**WATER CONTROLLERS, Boiler (See Boiler Water Controller)****WATER COOLERS**

Allen Filter Co., Toledo, Ohio
 Baker, Hamilton & Pacific Co., 7th & Townsend Sts., San Francisco
 Barth & Son, L., 30 Cooper Square, New York
 Berry & Co., Wm., 79 North St., Boston
 Blickman, Isador, 479 First Av., New York
 Blickman, S., 199 Lafayette St., New York
 Cincinnati Galvanizing Co., Cincinnati
 Clothel Refrigerating Co., 61 Broadway, New York, see p. 96
 Filtrine Mfg Co., 53 Lexington Av., Brooklyn, N. Y., see p. 46
 Findlay Mfg Co., Inc., Robt., 224 Fifth Av., New York
 Koven & Bro., L. O., 154 Ogden Av., Jersey City, N. J.
 Manufacturing Equip. & Engr. Co., Framingham, Mass.
 National Enamel & Stamp. Co., 413 Fifth Av., New York
 National Marine Lamp Co., Forestville, Conn.
 Perfection Cooler Co., Stoughton, Mass.
 Stearnes Co., Chicago
 Thornton Co., F. C., 5712 Union Av., Cleveland
 Xardell Brothers Co., Inc., Utica, N. Y.

WATERPROOFING COMPOUND

Dickson Waterproofing Co., New Orleans, La.
 Robeson Preservo Co., Port Huron, Mich.

WATTMETERS

Bristol Co., The, Waterbury, Conn.
 General Electric Co., Schenectady, N. Y., see p. 36-41
 Western Electric Co., 151 Fifth Av., New York
 Westinghouse Electric & Mfg Co., Pittsburgh
 Weston Electrical Inst. Co., Newark, N. J.

WELDERS' GOGGLES (See Goggles, Safety)**WELDING, Chemical Reaction**

Metal & Thermit Corp., 120 Broadway, New York

WELDING COMPOUNDS

Anti-Borax Compound Co., 105 Fulton St., New York
 Cortland Welding Compound Co., Cortland, N. Y.
 Montgomery & Co., 105 Fulton St., New York
 Patterson Bros., 27 Park Row, New York
 Williams & Wells Co., 252 Fulton St., New York

WELDING & CUTTING GAS REGULATORS

Bastian-Blessing Co., 125 W. Austin Av., Chicago
 Burdett Manufacturing Co., Chicago
 Cash Co., A. W., Decatur, Ill.
 Federal Brass Works, 31st & Kenzie Av., Chicago
 General Welding & Equipment Co., Boston
 International Oxygen Co., Newark, N. J.
 Oxweld Acetylene Co., Newark, N. J.
 Superior Oxy Acetylene Machine Co., Hamilton, Ohio
 Tolman Manufacturing Co., 19 Third St., Boston
 Torchweld Equipment Co., 224 Carpenter St., Chicago
 (See also Cutting & Welding Supplies, Gas)

WELDING & CUTTING SUPPLIES (See Cutting & Welding, Gas & Electric)**WELDING, ELECTRIC**

Southland Steamship Co., Savannah, Ga., see p. 101
 United Marine Contracting Corp., 15 Whitehall St., New York, see p. 128

WELDING MACHINES, Electric

Federal Machine & Welder Co., The, Warren, Ohio
 Taylor Welder Co., The, Warren, Ohio
 Thompson Electric Welding Co., Lynn, Mass.

WELDING MACHINES, Electric Arc

Burke Electric Co., Erie, Pa.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Gibb Instrument Co., Detroit, Mich.
 Wilson Welder & Metals Co., 36th St., Brooklyn, N. Y.

WELDING RODS & WIRE

Apex Steel Corp., 50 Church St., New York
 Central Steel & Wire Co., Chicago
 Gale Manufacturing Co., Newark, N. J.
 International Oxygen Co., Newark, N. J.
 Metals Welding Co., Cleveland
 Oxweld Acetylene Co., Newark, N. J.
 Page Steel & Wire Co., Gr. Cen. Term. Bldg., New York
 Philadelphia Steel & Iron Co., Philadelphia
 Roebling's Sons, J. A., Trenton, N. J.
 Welding Materials Co., 114 Liberty St., New York
 (See also Cutting & Welding Equipment, Electric and Gas)

WHISTLE CONTROLS

Benson Electric Co., 233 Broadway, New York
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Ford & Geirrine, San Francisco
 Henschel & Co., Inc., C. J., 111 Dobbin St., Bklyn, N. Y.
 McNab Co., The, Bridgeport, Conn.
 Pneumercator Co., Inc., 15 Park Row, New York

WHISTLES & SIRENS, Steam

Ashton Valve Co., The, 161 First St., Cambridge, 41, Mass., see p. 111
 Brown Co., A. & F., 79 Barclay St., New York
 Cory & Son, Inc., Chas., 183 Varick St., New York
 Crane Co., 836 Michigan Av., Chicago, see pp. 112-121
 Crosby Steam Gauge & Valve Co., Boston
 Ford & Geirrine, San Francisco
 Kelly & Jones Co., Greensburg, Pa.
 Lonergan Co., J. E., Philadelphia
 Lunkenheimer Co., Cincinnati
 Powell Co., The Wm., Cincinnati

WHITE LEAD

Marine Decking & Supply Co., Philadelphia, see p. 6
 Masury & Son, John W., Brooklyn, N. Y., see p. 69
 (See also Paint, Subhead)

WINDLASSES (See Also Anchor Engines)

Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, see p. 30

WINCHES, Deck

American Engineering Co., Philadelphia
 Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., see p. 100
 American Hoist & Derrick Co., St. Paul, Minn.
 Cunningham Co., Inc., Allan, Seattle, Wash.
 Flory Manufacturing Co., S., Bangor, Pa.
 Ford & Geirrine, San Francisco
 Green Co., Inc., G. S., 74 Warren St., New York
 Hadfield-Penfield Steel Co., The, Bucyrus, Ohio, s. p. 30
 Helser Machine Works, Inc., Portland, Ore.
 Hesse-Martin Iron Works, Portland, Ore.
 Hyde-Windlass Co., Bath, Me.
 Kearfoot Engineering Co., Inc., 95 Liberty St., New York, see pp. 92 & 93
 Lidgerwood Manufacturing Co., 96 Liberty St., New York
 Llewellyn Iron Works, Los Angeles
 Loane Engineering Co. (Gasoline), Baltimore
 Sheppard Electric & Hoist Co., Montour Falls, N. Y.
 Sprague Electric Works, 527 W. 34th St., New York
 Standard Machine & Tool Co., The, Dayton, Ohio

STERLING-COOPER CO., NEW YORK

WIRE, Brass & Copper

American Brass Co., The, Waterbury, Conn.
 Chase Rolling Mills Co., Waterbury, Conn.
 Clendenin Bros., The, 220 Broadway, New York
 Ducommun Hardware Co., San Francisco
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Oregon Brass Works, Portland, Ore.
 Roebling's Sons Co., John A., Trenton, N. J.
 Standard Underground Cable Co., Pittsburgh
 Wickwire Spencer Steel Corp, Worcester, Mass.

WIRE, Conduit & Telephone

Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

WIRE, Copper Clad

Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

Page Steel & Wire Co., Gr. Cen. Term. Bldg., New York
 Standard Underground Cable Co., Pittsburgh

WIRE, Electrical, Insulated

Aluminum Co. of America, Pittsburgh, Pa.
 American Brass Co., Bridgeport, Conn.
 American Steel & Wire Co., Chicago
 D. & W. Fuse Co., Providence, R. I.
 Electric Cable Co., Schenectady, N. Y.
 General Electric Co., Schenectady, N. Y., see pp. 36-41
 Goodrich Rubber Co., B. F., Akron, Ohio
 Habirshaw Electric Cable Co., 10 E. 43d St., New York, see p. 42

Hazard Manufacturing Co., Wilkes-Barre, Pa.
 Independent Lamp & Wire Co., Inc., 1733 B'way, New York

Roebling's Sons Co., J. A., Trenton, N. J.
 Standard Underground Cable Co., Pittsburgh
 Trumbull Electric Mfg Co., Plainville, Conn.
 Western Electric Co., 195 Broadway, New York
 Westinghouse Electric & Mfg Co., Pittsburgh

WIRE, Iron & Steel

American Steel Co., Pittsburgh
 American Steel & Wire Co., Chicago
 Atlantic Steel Co., Atlanta, Ga.
 Colorado Fuel & Iron Co., The, Denver, Col.
 Electrical Alloy Co., The, Morristown, N. J.
 Pittsburgh Steel Co., Pittsburgh
 Prentiss & Co., Geo. W., Holyoke, Mass.
 Washburn Wire Co., Inc., Ft. E. 118th St., New York
 Wickwire-Spencer Steel Corp, Worcester, Mass.

WIRE, Lead

United Lead Co., 111 Broadway, New York

WIRE, Magnet

Acme Wire Co., New Haven, Conn.
 American Brass Co., Waterbury, Conn.
 American Steel & Wire Co., Chicago
 D. & W. Fuse Co., Providence, R. I.
 Independent Lamp & Wire Co., Inc., 1733 Broadway, New York
 Roebling's Sons Co., J. A., Trenton, N. J.

WIRE, Monel Metal

Electrical Alloy Co., The, Morristown, N. J.
 Supplee-Biddle Hardware Co., Philadelphia

WIRE, Nickel

Electrical Alloy Co., The, Morristown, N. J.
 Haring, Ellsworth, 114 Liberty St., New York

WIRE, Phosphor Bronze

American Brass Co., Waterbury, Conn.
 Electrical Alloy Co., The, Morristown, N. J.

WIRE, Resistance

Electrical Alloy Co., The, Morristown, N. J.
 General Electric Co., Schenectady, N. Y., see pp. 36-41

WIRE, Spring

American Steel & Wire Co., Chicago
 General Spring & Wire Co., Detroit
 Kidd Drawn Steel Co., Aliquippa, Pa.
 New York Wire & Spring Co., Hoboken, N. J.

Raymond Manufacturing Co., Corry, Pa.
 Springfield Spring Co., The, Springfield, Ohio
 United States Steel Products Co., Seattle, Wash.
 Washburn Wire Co., Inc., Ft. E. 118th St., New York

WIRE, Welding (See Welding, Rod & Wire)**WIRE CLOTH, Brass**

Audubon Wire Cloth Co., Audubon, N. J.
 Buffalo Wire Works, Buffalo, N. Y.
 Michigan Wire Cloth Co., Detroit
 N. J. Wire Cloth Co., 210 Fulton St., New York
 Wickwire-Spencer Steel Corp., Worcester, Mass.

WIRE CLOTH, Bronze

Audubon Wire Cloth Co., Audubon, N. J.
 Buffalo Wire Works, Buffalo, N. Y.
 Garfield Wire Cloth Co., Garfield, N. J.
 Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
 Keystone Wire Cloth Co., Hanover, Pa.
 Michigan Wire Cloth Co., Detroit
 Wickwire Bros., Inc., Cortland, N. Y.

WIRE CLOTH, Galvanized

Audubon Wire Cloth Co., Audubon, N. J.
 Buffalo Wire Works, Buffalo
 Clinton Wire Cloth Co., Boston
 Darby & Sons, Edw., Philadelphia
 Howard & Morse, 45 Fulton St., New York
 Jolley & Co., J. H., Philadelphia
 New Jersey Wire Cloth Co., 210 Fulton St., New York
 Wickwire-Spencer Steel Corp, Worcester, Mass.

WIRE CLOTH, Monel Metal

Newark Wire Cloth Co., Newark, N. J.

WIRE ROPE (See Rope, Wire)**WIRE ROPE FITTINGS**

American Hoist & Derrick Co., St. Paul, Minn.
 American Steel & Wire Co., Chicago
 Broderick & Bascom Rope Co., Chicago
 Carpenter & Co., Geo. B., Chicago
 Channon Manufacturing Co., Jas. H., Chicago
 Hallett Iron Works, Harvey, Ill.
 Hazard Manufacturing Co., Wilkes-Barre, Pa.
 Leschen & Sons Rope Co., A., St. Louis, Mo.
 Macwhyte Co., Kenosha, Wis.
 Moon Co., Geo. B., Garwood, N. J.
 Marine Hardware Equipment Co., So. Portland, Me.
 Newhall Chain Forge & Iron Co., 90 West St., New York
 Tiebout, W. & J., 118 Chambers St., New York, see p. 59
 Upson-Walton Co. of New York, 291 Bway., New York
 Waterbury Co., 63 Park Row, New York
 Wickwire-Spencer Steel Corp, Worcester, Mass.
 Wilcox, Crittenden & Co., Middletown, Conn.
 Williams & Co., J. H., 150 Hamilton Av., Bklyn., N. Y.
 Williamsport Wire Rope Co., Williamsport, Pa.

WIRE SPECIALTIES, Springs, etc.

Cuyahoga Spring Co., The, Cleveland
 Dunbar Bros. Co., The, Bristol, Conn.
 Fischer Spring Co., The Chas., 473 Kent Av., Brooklyn, N. Y.
 Fort Pitt Spring & Mfg Co., Pittsburgh
 Gibson Co., The Wm. D., Chicago
 Humason Manufacturing Co., The, Forestville, Conn.
 Mattatuck Manufacturing Co., The, Waterbury, Conn.
 Raymond Manufacturing Co., Ltd., Corry, Pa.

WIRELESS OUTFITS

Clapp-Eastham Co., 139 Main St., Cambridge, Mass.
 Cutting & Washington Radio Corp., 6 & 8 W. 48th St., New York, see p. 82
 Radio Corporation of America, 233 Broadway, New York, see p. 83
 Halcum Radio Co., Inc., 548 Howard St., San Francisco
 Kilbourne & Clark Mfg Co., Seattle, Wash.

WIRING DEVICES, Electrical

General Electric Co., Schenectady, N. Y., see p. 36-41
 Seidler-Miner Co., Inc., 36 E. Larned St., Detroit, Mich., see p. 43
 (See Also Specific Headings)

STERLING-COOPER CO., NEW YORK

WOODWORKING MACHINERY

Hall & Brown Woodworking Mach. Co., St. Louis, Mo.
Herbert's Machinery & Supply Co., Los Angeles
Hunter Saw & Machine Co., Pittsburgh
Manning, Maxwell & Moore, 119 W. 40th St., New York
National Woodworking Machine Co., Dover, N. H.
Newman Machine Co., Greensboro, N. C.
Niles-Bement-Pond Co., 111 Broadway, New York
Oliver Machinery Co., Grand Rapids, Mich.
Silver Mfg Co., Salem, Ohio
Smith-Courtney Co., Richmond, Va.
Whitney & Son, Inc., Baxter D., Winchendon, Mass.

WRECKING COMPANIES (See Port Data Section)**WRENCHES, Chain**

Cochran Mfg & Forging Co., 78th St. & Woodlawn Av., Chicago
Greene, Tweed & Co., Duane St., New York
Kroeschell Bros. Co., Chicago
Trimont Mfg Co., Roxbury, Boston

WRENCHES, Monkey

Bemis & Call Hdw. & Tool Co., Springfield, Mass.
Coe's Wrench Co., Worcester, Mass.
Trimont Mfg Co., Roxbury, Boston

WRENCHES, Pipe

Bemis & Call Hdw. & Tool Co., Springfield, Mass.
Cochran Mfg & Forging Co., Chicago
Drop Forge Co. of N. Y., The, Jersey City, N. J.
Efficiency Device Corp, Long Island City, N. Y.
Greenfield Tap & Die Corp, Greenfield, Mass.
Trimont Mfg Co., Roxbury, Boston
Williams & Co., J. H., 150 Hamilton Av., Bklyn., N. Y.

WRENCHES, Ratchet

Greene, Tweed & Co., New York
Keystone Mfg Co., Buffalo, N. Y.
Lowell Wrench Co., Worcester, Mass.
Pratt & Whitney, 111 Broadway, New York

WRENCHES, Socket

Billings & Spencer Co., The, Hartford, Conn.
Graham Roller Bearing Co., Coudersport, Pa.
Williams & Co., J. H., 150 Hamilton Av., Bklyn, N. Y.

WRENCHES, Solid, Drop Forged, Flat

Armstrong Bros. Tool Co., Chicago
Billings & Spencer Co., The, Hartford, Conn.
Cochran Mfg & Forging Co., Chicago
Drop Forging Co. of N. Y., The, Jersey City, N. J.
Williams & Co., J. H., 150 Hamilton Av., Bklyn, N. Y.

WRENCHES, Stillson

Moore Drop Forging Co., Springfield, Mass.
Wallworth Mfg Co., Boston

WRENCHES, Tap

Bay State Tap & Die Co., Mansfield, Mass.
Butterfield & Co., Derby Line, Vt.
Greenfield Tap & Die Corp, Greenfield, Mass.
Pratt & Whitney, 111 Broadway, New York

Z**ZINC, Dust****Oxide, Dry****White, Dry**

American Metal Co., 61 Broadway, New York
American Paint Co., New Orleans, La.
California Paint Co., San Francisco
Davis Co., H. B., Baltimore, Md.
Finn Metal Works, John, San Francisco
Lucas & Co., Inc., John, 521 Washington St., New York
Masury & Son, John W., Brooklyn, N. Y., see p. 69
New Jersey Zinc Co., 160 Front St., New York
Seattle Paint Co., Seattle, Wash.

ZINC, Plate & Sheet

American Zinc Products Co., The, Greencastle, Ind.
Brooklyn Alloys Co., 17 Walton St., Brooklyn
Bruce & Cook, 190 Water St., New York
Eastern Zinc Refining Co., 255 Russell St., Bklyn., N. Y.
Edes Mfg Co., The, Plymouth, Mass.
Finn Metal Works, John, San Francisco
Hungerford Brass & Copper Co., U. T., 80 Lafayette St., New York
Pope Metals Co., 90 West St., New York
Sandoval Zinc Co., 410 N. Peoria St., Chicago
Shonberg, Inc., I., 122 Flushing Av., Brooklyn, N. Y.
Trotter & Co., Nathan, Philadelphia
United American Metals Corp, 196 Diamond St., Bklyn., N. Y.
White Bros., Inc., N. A. Bldg., Philadelphia

ZINC, Rolled, Boiler

DeGrauw Aymer & Co., 34 South St., New York
Edes Mfg Co., The, Plymouth, Mass.
Finn Metal Works, John, San Francisco
Shonberg, Inc., I., 122 Flushing Av., Brooklyn, N. Y.
Trotter & Co., Nathan, Philadelphia

ZINC, White, in Oil (See Paint, Subhead)

STERLING-COOPER CO., NEW YORK

PORT DATA SECTION

ASHTABULA, OHIO

TOWING, WRECKING, LIGHTERAGE, BUNKERING
Great Lakes Towing Co.

SHIP CHANDLERS

Cheney's Sons, P. H.
Marine Supply House

BALTIMORE, MD.**TOWING, LIGHTERAGE**

Adams, Matthew W., Marine Bank Bldg.
American Towing & Lighterage Co., Marine Bank Bldg.
Atlantic Transport Co., Chamber of Commerce Bldg.
Baltimore Transportation Co., Fidelity Bldg.
Chesapeake Lighterage and Towing Co., Keyser Bldg.
Coastwise Shipping & Lighterage Co., Md. Trust Bldg.
Coastwise Transportation Co., Marine Bank Bldg.
Consolidated Ferry Co., Ft. S. Chester St.
Curtis Bay Towing Co., Munsey Bldg.
Dougherty Co., P., Md. Casualty Bldg.
Eastern Transportation Co., Munsey Bldg.
Harrison & Co., Inc., C. W., Stewart Bldg.
Lewis Tow. & Lighter. Co., C. W., Hughes & Henry Sts.
Maryland Transportation Co., American Bldg.
Northern Transportation Co., Munsey Bldg.
Rapid Coaling & Transfer Co., Keyser Bldg.
Southern Transportation Co., Munsey Bldg.
Terminal Shipping Co., Keyser Bldg.

WRECKING

American Wrecking Co., 15 E. Fayette St.
Baltimore Wrecking Co., 221 S. Ellwood Av.
Canton Wrecking Co., 517 W. Redwood St.
Johnson Wrecking Co., American Bldg.

BUNKERING, COAL

Baker-Whiteley Coal Co., Keyser Bldg.
Baltimore Forwarding & Transport Co., Keyser Bldg.
Coale & Co., Munsey Bldg.
Davis Coal & Coke Co., The, Continental Bldg.
Hamilton Coal Co., S. M., Marine Bank Bldg.
Hendley & Co., C. W., Continental Bldg.
Lewis Fuel Co., Garrett Bldg.

BUNKERING, FUEL OIL

Lewis Fuel Co., Garrett Bldg.
Prudential Oil Co., Keyser Bldg.
Standard Oil Co., Pratt St.
U. S. Asphalt Refining Co., E. Brooklyn, Md.

SHIP CHANDLERS

Astarbi, Pedro, 1631 Thames St.
Boe Gerhard Co., Inc., 20 S. Gay St.
Captains Ship Chandlery Co., 604 E. Pratt St.
Claridge & Woodall, 105 S. Frederick St.
Collings & Hayden, 410 E. Pratt St.
Corner & Sons, Jas., East Falls Av. & Fawn St.
Curtis Bay Supply Co., Beech & Curtis Av.
Gramigna & Sons, P., 605 E. Lombard St.
Hamburger, Morris, 615 S. Broadway
Hand & Sons, John E., 17 S. Gay St.
Hayden, Chas F., 410 E. Pratt St.
Japanese Ship Supply Co., 506 E. Baltimore St.
Keogan & Co., Jas. J., 510 E. Lombard St.
Kessel Co., Henry A., 121 S. Gay St.
Kirk-Habicht Co., The, 108 S. Calvert St.
Marine Torch Co., 269 S. 7th St.
Minarik, L. F., Beech & Curtis Av.
Muir & Son, W. L., 2232 Boston St.
Norden Ship Supply Co., 104 S. Gay St.
Olsen & Co., Inc., O. P., 47 S. Gay St.

Sparrows Point Stores Co., 35 S. Bay St.
Struven & Co., Charles M., 114 Frederick Av.
Taylor Co., R. J., 39 S. Gay St.
Vane Brothers, 602 E. Pratt St.
Webb & Sons, A. L., Lombard & Hollingworth Sts.
Webster & Brothers, N. W., 2204 Boston St.

MARINE INSURANCE

Boston Ins. Co. of Boston, Chamber of Commerce Bldg.
Cunningham, Coale & Co., Chamber of Commerce Bldg.
Federal Insurance Co., Chamber of Commerce Bldg.
Hartford Fire Ins. Co., Commerce & Waters Sts.
Indemnity Mutual Mar. Ins. Co., Chamber of Com. Bldg.
Insurance Co. of No. America, 32 South St.
Lloyds American & European Underwriters, Chamber of Commerce Bldg.
St. Paul Fire & Mar. Ins. Co., Commerce & Waters Sts.
Thames & Mersey Mar. Ins. Co., The, Keyser Bldg.
Warfield, Henry M., Chamber of Commerce Bldg.

BOSTON, MASS.**TOWING**

Boston Tow Boat Co., Lewis Wharf
Commercial Towing Co., Commercial Wharf
Doane Tow Boat Co., Lewis Wharf
Purdy Tow Boat Co., 28 T Wharf
Ross Tow Boat Co., T Wharf

LIGHTERAGE

Bay State Dredging & Contracting Co., E. Boston
Betts Bros. & Co., E. Boston
McKee Lighter Co., E. Boston
Merchant Steam Lighter Co., Constitution Wharf
Scott, T. A. Co.

WRECKING

Betts Bros. & Co., E. Boston
Scott Co., Inc., T. A. (of New London), 113 State St.

BUNKERING, COAL

Castner, Curran & Bullitt, Inc., 131 State St.
Maritime Coaling Co., 4 No. Ferry Av., E. Boston
Metropolitan Coal Co., 20 Exchange Place
N. E. Fuel & Transportation Co., 111 Devonshire St.

BUNKERING, FUEL OIL

Beacon Oil Co., Everett, Mass.
Mexican Petroleum Co., Chelsea, Mass.
Standard Oil Co., E. Boston
Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Atlantic Maritime Co., 210 State St.
Blackburn & Co., S. P., 132 Milk St.
Bliss & Co., Jas., 91 Broad St.
Ferdinand & Co., L. W., 152 Kneeland St.
Flintner-Atwood Co., 210 Commercial St.
Harrington King & Co., 79 Commercial St.
Hodder, W. W., 5 Commercial Wharf
Kessel Co., Henry A., 33 India St.
Lothrop Co., L. D., 15 T Wharf
Salow, Elvin, 102 Broad St.
Scandia Trading Co., Inc., 88 Broad St.

BRUNSWICK, GA.**TOWING**

South Atlantic Towing Co.

LIGHTERAGE

Jacksonville Lighterage Co.

BUNKERING, COAL

Coney & Parker Co.

BUNKERING, FUEL OIL
Atlantic Refining Co.**SHIP CHANDLERS**
Wright & Gowen Co.**BUFFALO, N. Y.**

TOWING, LIGHTERAGE, WRECKING
Cowles Towing Co., 31 St. Clair St.
Hand & Johnson Tug Line, Ft. So. Michigan Av.
SHIP CHANDLERS
Baker & Co., Howard H., 18 Terrace
Connelly Bros., 159 Ohio St.
McCarthy & Son, Jerry, 157 Ohio St.

CHARLESTOWN, S. C.

TOWING
Lockwood, R. H.
LIGHTERAGE
Charleston Lighter. & Transfer Co., Mid. Atlantic Wharf
BUNKERING, COAL
Consumers' Coal Co., Inc., Central Wharf
Johnson, William & Co., E. Laurens St.
Southern Railway, Pier 12
BUNKERING, FUEL OIL
Standard Oil Co.
Texas Co., The, see pp. 61-64
SHIP CHANDLERS
Ludens & Co., J. J. W., 158 E. Bay St.
Olsen & Co., O. P., 133 E. Bay St.
MARINE INSURANCE
Bilbro, Walter, 35 Broad St.
Hyde & Sons, 42 Broad St.
Kroeg, A. A., 53 Broad St.
Lowndes & Co., C. T., 14 Broad St.
McGee Agency, Hall T., 7 Broad St.
Middleton & Co., W. D., 9 State St.
Pinckney, Arthur, 28 Broad St.
Robertson, F. M., 12 Broad St.

CHICAGO, ILL.

TOWING, WRECKING
Dunham Towing & Wrecking Co., 521 E. No. Waters St.
Great Lakes Dredge & Dock Co., 104 So. Michigan Av.
LIGHTERAGE
Acme Lighterage Co., 1162 N. Branch St.
Merchants' Lighterage Co., 22 So. Market St.
SHIP CHANDLERS
Carpenter & Co., Geo. B., 430 N. Wells St.
Channon, H., 150 N. Market St.
Great Lakes Supply Co., 3217 E. 92d St.
Upson Walton Co., 711 N. Wells St.
BUNKERING, COAL
Eureka Coal & Dock Co., 332 S. Michigan Av.
Hanna Coal & Dock Co., 1264 Elston Av.
Interstate Coal & Dock Co., 343 S. Dearborn St.
Phila. & Reading Coal & Iron Co., Old Colony Bldg.
Union Colliery Co., 417 S. Dearborn St.
BUNKERING, FUEL OIL
Peerless Equipment Co., 6022 S. State St.
MARINE INSURANCE
Aetna Ins. Co., 175 Jackson Blvd.
Commercial Union Assur. Co., Ltd., 175 Jackson Blvd.
Ins. Co. of No. America, 209 Jackson Blvd.
Standard Mar. Ins. Co., Ltd., 39 S. La Salle St.

CLEVELAND, OHIO

TOWING, LIGHTERAGE, WRECKING
Great Lakes Towing Co., Kirby Bldg.
SHIP CHANDLERS
Great Lakes Mfg Co., Leader-News Bldg.

Hausheer & Sons, 1220 W. 11th St.
Morrison & Sons, Frank, 1330 W. 11th St.
Mulholland Hatch Fastener Co., 1276 W. 3d St.
Pioneer Marine Supply Co., 996 W. 11th St.
Upson-Walton Co., West 11th St.

ERIE, PA.

TOWING, LIGHTERAGE, WRECKING
Great Lakes Towing Co., Ft. State St.
SHIP CHANDLERS
Beckman & Son, Henry, 506 State St.
Marine Supply Co., 401 State St.
Sterling Warfel Mill Sup. Co., 12th & French Sts.

GALVESTON, TEXAS

TOWING, LIGHTERAGE
Binyon-O'Keefe Contracting Co., S. P. Docks
Clarke & Co., Chas., Security Bldg.
Suderman & Young, Marine Bldg.
SHIP CHANDLERS
Chapman, W. J., 2014 Av. B
Flood & Calvert, 2316 Av. B
Focke, Jno. W., 2124 Av. B
BUNKERING, COAL
Cinchfield Fuel Co., Amer. Natl. Ins. Co. Bldg.
Davidson & Co., 2902 Av. B
Flood & Co., E. O., 2113 Av. C
Fowler & McVitie, Cotton Exchange Bldg.
BUNKERING, FUEL OIL
Gulf Refining Co., 1802 Av. A
Magnolia Petroleum Co., 1202 Av. A
Pierce Fordyce Oil Ass'n, 111 25th St.
Texas Co., The, see pp. 61-64
MARINE INSURANCE
Beers, Kennison & Co., 2010 Av. B
Brown & Co., Chas. R., Marine Bldg.
Morrow & Co., J., 2126 Av. B

GULFPORT, MISS.

TOWING, WRECKING, LIGHTERAGE
Gulfport Towing Co.
Simpson Bros. and Gordon
SHIP CHANDLERS
Hewes, N. & F.
Seeburg, Rolf
Simpson, C. A.
Streiffer, Saul
BUNKERING, COAL
Gulfport Towing Co.
BUNKERING, OIL
Texas Co., The, see pp. 61-64

JACKSONVILLE, FLA.

TOWING, WRECKING
Jacksonville Forwarding Co., Ft. Laura St.
Jackson Tow'g & Wreck'g Co., 1005 E. Church St.
LIGHTERAGE
Fozzard Lighterage Co., C. M., Ft. Liberty St.
Jacksonville Forwarding Co., Ft. Laura St.
Jacksonville Lighterage Co., Ft. Liberty St.
BUNKERING, COAL
Logen Coal Co., E. Bay St.
Tupper Coal Co., R. B., A. C. L. Viaduct
Weller Coal Co., Ft. Hogan St.
BUNKERING, OIL
Freeport & Tampico Fuel Oil Trans. Co.
Gulf Refining Co.
Mexican Petroleum Corp.
Standard Oil Co.
Texas Co., The, see pp. 61-64
MARINE INSURANCE
Calkins & Co., F. C., Bisbee Bldg.
Hare & Co., H. C., 135 E. Forsyth St.

James & Paxon, Mutual Life Bldg.
 Lovell Ins. Co., Professional Bldg.
 McCrory Co., W. M., 56 W. Bay St.
 Payne, Clifford A., Bisbee Bldg.

LOS ANGELES, CAL.

TOWING

Banning Co., San Pedro, Cal.
 Los Angeles S. B. & D. D. Co., San Pedro, Cal.
 San Pedro Transportation Co., San Pedro, Cal.

WRECKING

Los Angeles S. B. & D. D. Co., San Pedro, Cal.

LIGHTERAGE

Banning Co., San Pedro, Cal.

BUNKERING, COAL

Spreckels Bros. Commercial Co., Citizens' Nat. Bank Bldg.

BUNKERING, OIL

General Petroleum Co., Higgins Bldg.
 Standard Oil Co., 1727 N. Spring St.
 Union Oil Co., Union Oil Bldg.

SHIP CHANDLERS

Hendry & Co., C. J., San Pedro, Cal.
 Marine Hardware Co., San Pedro, Cal.

MARINE INSURANCE

Automobile Ins. Co. (Marine Dept.) Van Nuys Bldg.
 Fireman's Fund Ins. Co., Byrne Bldg.
 Kreider, S. L., Pacific Electric Bldg.

MARQUETTE, MICH.

SHIP CHANDLERS AND BUNKERING, COAL

Pickards & Co.
 Spears & Sons., F. B.

MICHIGAN CITY, IND.

TOWING

Ludwig Co., R. C.

LIGHTERAGE

Purvis Co., E. B.

BUNKERING, COAL

Harbor Coal Co.

SHIP CHANDLERS

Kramer & Sons

MILWAUKEE, WIS.

TOWING

Independent Tug Co., 232 S. Water St.
 Lorena Towing Co., Public Service Bldg.
 Milwaukee Tug Boat Line, 98 Ferry St.

WRECKING

Milwaukee Tug Boat Line, 98 Ferry St.

SHIP CHANDLERS

Joys Bros. Co., 201 E. Water St.

MOBILE, ALA.

TOWING, WRECKING, LIGHTERAGE

Lapwing Towing & Wrecking Co.
 Mobile Barge Co.
 Mobile Towing & Wrecking Co.
 Oswell Towing & Timber Co.

BUNKERING, COAL

Gulf Coal Co.
 Mobile Coal Co.
 Zimmern Coal Co.

BUNKERING, OIL

Standard Oil Co.
 Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Cowles Ship Supply Co.
 Cunningham Hardware Co.
 McGowin Lyons Hardware & Supply Co.
 Mangold, A. L.
 Marine Equipment Co.

Marine Supply Co.
 Mobile Ship Chandlery Co.
 Seeberg Ship Chandlery Co.
 Solberg Ship Chandlery Co., H. S.
 Turner Supply Co.

MARINE INSURANCE

Adams & Son & Wilson, B. F.
 Croom & Tonsmiere
 Factors & Traders Ins. Co.
 Norville Bros.
 Page & Jones, see p. 102
 Stonewall Ins. Co.

NEW HAVEN, CONN.

TOWING

New Haven Towing Co., The

LIGHTERAGE

Alling Co., Wm. H.,
 Reed, C. W.

WRECKING

Scott Co., T. A., 292 Pequot Av., New London

BUNKERING, COAL

Gilbert & Co., W. F.
 New Haven Coal Co., The
 Powell & Co., A. H.

BUNKERING, FUEL OIL

Standard Oil Co., The
 Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Bushnell Co., N. T.
 Mersick & Co., C. S.

MARINE INSURANCE

Mason & Co., F. H.
 Security Insurance

NEW LONDON, CONN.

TOWING, WRECKING

Scott Co., T. A., 292 Pequot Av.
 Thames Tow Boat Co., Riverside Park

LIGHTERAGE

Scott Co., T. A., 292 Pequot Av.

BUNKERING, COAL

Chappell Coal Co., The, 286 Bank St.

BUNKERING, FUEL OIL

Gulf Refining Co., 101 Sixteenth St.
 Standard Oil Co., 85 Lewis St.

SHIP CHANDLERS

Darrow & Constock, 96 Bank St.
 Eaton & Wilson Co., 208 Bank St.

MARINE INSURANCE

Dillon, T. C., State St.
 May, James R., State St.
 Miner, Sidney H., State St.

NEW ORLEANS, LA.

TOWING, LIGHTERAGE, WRECKING

Coyle & Co., W. G., 337 Carondelet St.
 N. O. Towing & Lighterage Co., Hennen Bldg.
 Whiteman Bros., 611 Gravier St.

BUNKERING, COAL

River Coal Co., Ft. Alix St.

BUNKERING, FUEL OIL

Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Kenner Bros., 426 Camp St.
 McFarlane, F. G., 730 Camp St.
 Menge Marine Hardware & Sup. Co., 218 Canal St.
 New Orleans Ship Chan. Co., 211 Peters St.
 Northon Clifford C., 404 Canal St.
 Salomon & Son, Inc., M. W., 1140 St. Charles St.
 Seeberg Rolf Ship Chan. Co., 227 Canal St.
 Wang & Co., Inc., Hans M., 215 Canal St.
 Woodward Wight & Co., Howard Av. & Constance St.

MARINE INSURANCE

Ellis & Powers, 734 Union St.
 Kausler, George S., Ltd., 407 Hibernia Bank Bldg.
 Leblanc & Railey, Ltd., 833-835 Gravier St.
 Moore Lucas & Co., 826 Common St.
 Ross-Eustis Co., Inc., 728 Gravier St.
 Wilcox, Peck & Hughes, Q. & C. Bldg.

NEW YORK CITY**TOWING**

Ackerman Towing Co., 80 South St.
 Anchor Towing & Trans. Co., 25 Whitehall St.
 Atlas Lighterage Co., Inc., 59 Pearl St.
 Baker Towing Co., 33 Coenties Slip
 Barrett Towing Line, 90 West St.
 Bartley Scow Co., Inc., 59 Pearl St.
 Boylan Towing & Trans. Corp., 233 Broadway
 Bronx Towing Line, Harlem River & 152d St.
 Cahill Towing Line, 140 Broad St.
 Chelsea Towing Line, Pier 49, N. R.
 Craig, W. B., 309 Broadway
 Crescent Towing Line, 78 Broad St.
 Crew Transportation Corp., 70 South St.
 Cullen Barge Corp., 1 Broadway
 Dailey's Towing Line, Inc., 2159 Madison Av.
 Daly Towing & Trans. Co., 116 Broad St.
 Dalzell & Co., Inc., Fred B., 21 State St.
 Downer Towing Corp., Pier 59, N. R.
 East River Towing Co., Inc., 28 Whitehall St.
 Egerton Towing Co., 90 West St.
 Flannery Towing Lines, 33 Coenties Slip
 Forst & Co., Norbert H., Pier 43, N. R.
 Guidera Towing & Trans. Co., 50 Church St.
 Harbor Service Corp., 109 Broad St.
 Harbor Ship Service Co., 123 Liberty St.
 Harlem River Towb't Line, Inc., Park Av. & Harlem R.
 Holbrook Towing Line, Inc., 15 William St.
 Interstate Lighterage & Trans. Co., Pier 11, N. R.
 Kennedy's Towing Line, 32 South St.
 Knickerbocker Towing & Trans. Co., 28 Whitehall St.
 Lee's Towing Line, Inc., 44 Whitehall St.
 Luckenbach Co., Inc., 44 Whitehall St.
 McAllister Towing & Trans. Co., Inc., 17 State St.
 McWilliams Bros., Inc., 1 Broadway
 Manhattan Towing Co., Pier 11, N. R.
 Merritt & Chapman Derrick & Wreck'g Co., 17 Battery Pl.
 Meseck Towing & Trans. Co., 11 Broadway
 Moore Co., John E., 17 State St.
 Moran Towing & Trans. Co., 17 Battery Pl.
 Mutual Towing Co., Inc., Produce Exchange Bldg.
 Myers & Co., John D., 116 Broad St.
 Neptune Harbor Trans. Co., 38 South St.
 Newark & N. Y. Tow. & Trans. Co., 19 South St.
 Newton Creek Towing Co., Pier 5, E. R.
 Olsen Water & Towing Co., 116 Broad St.
 Pareis Bros. Towing Line, Pier 43, N. R.
 Perth Amboy Towing Co., Pier 8, N. R.
 Petrie Towing & Trans. Line, 116 Broad St.
 Phoenix Transit Co., 30 Church St.
 Red Star Towing & Trans. Co., 17 Battery Pl.
 Rogers Towing & Trans. Co., Robert, 17 Battery Pl.
 Sagadahoc Towing Co., 111 Broadway
 St. George Towing Line, 1 Broadway
 Scully's Tow. & Trans. Line, 1 Broadway
 Shamrock Towing Co., Inc., 680 12th Av.
 Shewan & Sons, Inc., James, 1 Broadway
 Stanwood Towing Co., 17 State St.
 Sullivan Towing & Trans. Co., 29 Broadway
 Thames Tow Boat Co., 1 Broadway
 Tice Towing Line, 17 Battery Pl.
 Tracy Towing Line, 1 Broadway
 Union Tow Boat Co., Inc., Pier 5, E. R.
United Marine Contracting Corp., 15 Whitehall St., New York, see p. 128
 Vierow's Towing Line, Pier 59, N. R.
 White Star Towing & Trans. Line, 70 South St.
 White Star Towing Co., Pier 5, E. R.

LIGHTERAGE

Ackerman Lighterage Co., Inc., 80 South St.

Astell Coaling & Lighterage Co., 39 Cortlandt St.
 Atlantic Lighterage Corp., 17 Battery Pl.
 Atlas Lighterage Co., 59 Pearl St.
 Barton Lighter. & Trans. Co., Inc., Edward J., 1 B'way
 Boyer's Sons Co., L., 82 Beaver St.
 Capital Lighterage Co., 52 Fulton St.
 Cement Lighterage Co., 50 Church St.
 Chelsea Lighterage Co., 19 S. William St.
 Chiarello Bros. Co., 11 Broadway
 Cleary Bros., 116 Broad St.
 Clyde Lighterage Co., Inc., 24 Stone St.
 Craig, W. B., 309 Broadway
 Crane & Co., C. W., 17 Battery Pl.
 Du Bois & Smith, 44 Whitehall St.
 Dunham Lighterage Co., 29 Broadway
 Eclipse Lighterage & Trans. Co., 51 E. 42d St.
 Elizabethport Lighterage Co., 115 Broadway
 Empire Lighterage & Transportation Co., 138 Broad St.
 Federal Lighterage Co., 59 Pearl St.
 Flower Lighterage Co., 60 Wall St.
 Gillen's Sons Lighterage, Inc., Henry, 59 Pearl St.
 Gleason Lighterage Co., 1 Broadway
 Gordon Lighterage Co., Warren, 143 Liberty St.
 Hammond & Co., Geo. L., 60 Wall St.
 Harbor Lighterage Co., 167 Water St.
 Harms Co., C. F., 17 State St.
 Hastorf Contracting Co., Inc., 271 W. 125th St.
 Hudson River Lighterage Co., 17 State St.
 Imperial Trans. & Lighterage Co., 109 Broad St.
 Interstate Lighterage & Trans. Co., Pier 11, N. R.
 Jarvis Lighterage Co., 42 Whitehall St.
 Johnson Bros. Lighterage Co., 29 Broadway
 Johnson Lighterage Co., 17 Battery Pl.
 Kehoe, J. J., 49 South St.
 Keystone Lighterage & Trans. Co., 29 Broadway
 King's Transport & Supply Co., 17 Battery Pl.
 Langdon Lighterage Co., 24 Stone St.
 Lee's Lighters, 42 Whitehall St.
 Leggett, G. B., 44 Whitehall St.
 Lighterage Corp., The, 78 Broad St.
 McAllister Lighterage Line, 24 State St.
 McCreery's Son, John, 80 South St.
 Manhattan Lighterage Co., Pier 11, N. R.
 Marine Lighterage Corp., 17 Battery Pl.
 Merritt & Chapman Derrick & Wreck. Co., 17 Battery Pl.
 Metcalfe Lighterage Co., Pier 18, N. R.
 Murray Harbor Express Co., 27 No. Pier, Brooklyn
 Myers & Co., John D., 116 Broad St.
 National Lighterage Co., 1790 Broadway
 Neptune Harbor Transportation, 38 South St.
 New York Marine Co., 17 Battery Pl.
 New York-New Eng. & Penn. L't'ge Co., 15 Whitehall St.
 New York & Albany Lighterage Co., Pier 39, N. R.
 N. Y. & Staten Isl. Lighterage Corp., 107 Broad St.
 O'Boyle Lighterage Co., 1 Broadway
 Overseas Stevedoring & L't'ge Co., 120 Liberty St.
 Phoenix Transit Co., 30 Church St.
 Powelton Barge Co., 29 Broadway
 Republic Lighterage Co., 59 Pearl St.
 Republic Trans. Co., Inc., 17 State St.
 Richmond Lighterage Co., 78 Broad St.
 Robins & Wright, 30 Pearl St.
 Rogers Lighterage Co., 59 Pearl St.
 Seaboard Contracting Co., 143 Liberty St.
 Sellers Transportation Co., 16 Beaver St.
 Shortland Bros. Co., 96 Wall St.
 Sidnam Lighterage & Trans. Co., 15 Whitehall St.
 Simmons Trans. Co., 42 Whitehall St.
 Star Storage & Lighterage, 594 Water St.
 Sunset Lighterage Corp., Pier 49, N. R.
 Union Lighterage Co., 17 Battery Pl.
 Waller Lighterage Co., 29 Broadway
 Water Front Contracting & L't'ge Co., 17 Battery Pl.
 Williams Line, Inc., 19 South St.
 Wright & Cobb Lighterage Co., 17 Battery Pl.

WRECKING

Baxter Wrecking Corp., 308 West St.
 Gulf Wrecking & Salv. Co., Produce Exchange Bldg.
 International Wrecking Co., 66 Broadway
 Merritt & Chapman Derrick & Wreck. Co., 17 Battery Pl.

N. Y. Submarine Cont. Co., 15 Whitehall St.
Oceanic Salvage Corp., 21 Park Row

BUNKERING, COAL

American Fuel & Shipping Co., 17 Battery Pl.
Berwind-White Coal Mining Co., 1 Broadway
Castner, Curran & Bullitt, 1 Broadway
Commercial Coal Co., 11 Broadway
Cosgrove & Wynkoop Coal Co., 149 Broadway
De Mayo Coaling Co., Pier 62, N. R.
Dickson & Eddy, 17 Battery Pl.
Equitable Coal Co., 11 Broadway
Eyre Fuel Co., 29 Broadway
Flack & Son, D. L., 29 Broadway
General Coal Co., Inc., 24 Broad St.
Lambert Bros., Ltd., 8 Bridge St.
Majestic Coal Co., 120 Broadway
N. Y. & Phila. Coal & Coke Co., Produce Exch. Bldg.
No. River Coal & Wharf Co., 17 Battery Pl.
Penn. Coal & Coke Corp., 17 Battery Pl.
Pocohontas Fuel Co., 1 Broadway
Pocahontas & New River Coal Co., 11 Broadway
Willard, Sutherland & Co., 8 Bridge St.
Wm. Cory-Mann-George Corp., The, 26 Beaver St.

BUNKERING, OIL

Mexican Petroleum Corp., 120 Broadway
Standard Oil Co. (N. J.), 26 Broadway
Tidewater Oil Co., 11 Broadway
Texas Co., The, 17 Battery Place, see pp. 61-64

SHIP CHANDLERS

Astarbi & Co., P., 16 Hamilton Av., Brooklyn
Atlantic Sales Co., 29 Broadway
Auten & Co., Geo. M., 189 Front St.
Automatic Supply Co., 36 South St.
Baker, Carver & Morrell, 39 Water St.
Barry & Co., D. J., 83 Barclay St.
Bowman-Edson Co., M. K., 65 Dey St.
Broberg Co., H. F., 25 Pearl St.
Brown Co., A. Judson, 30 Church St.
Euchter, C. J., 22 Bridge St.
Burrows, Inc., Geo. R., 2 South St.
Buse, Fred, 123 Broadway
Clausen Co., James M., 22 Bridge St.
Continental Rubber Works, 35 Murray St.
Coston Supply Co., 23 Water St.
Diamond Campbell Co., 42 Front St.
Durkee & Co., C. D., 2 South St., see p. 58
Empire Ship Fitting Co., 68 Broad St.
Fletcher Co., W. & A., 25 Pearl St.
Flitner-Atwood Co., Inc., 52 Front St.
Galbraith & Son, Inc., C. C., 90 West St.
General Ship Supply Co., 39 Front St.
Guinan, Inc., B. F., 29 South St.
Harrison Corp., John, 169 South St.
Hegeman & Ward, 43 South St.
Hild & Sam Hensen, Inc., 62 Stone St.
International Ship Supply Co., 19 S. William St.
Keegan & Co., Joseph J., 15 Coenties Slip
Kessel Co., Henry A., 35 Pearl St.
Keystone Supply Co., 61 Broadway
McIntosh, Terrio & Co., 58 Pearl St.
McMillan's Sons, W. H., 153 South St.
Marine Mfg. & Supply Co., 158 South St.
Marine Outfitting Co., 15 Whitehall St.
Neptunus Ship Supply Co., Inc., 73 Front St., see p. 14
Newhall Ship Chandlery Co., 29 Murray St.
Norden Ship Supply Co., 32 Water St.
Ocean Ship Chandlery Co., 54 Front St.
Olsen & Co., O. P., 30 Water St.
Patterson Co., W. W., 133 Greenwich St.
Pendleton & Co., Jr., W. S., 164 Front St.
Platou Co., C., 125 Broad St.
Pollock, Alexander Co., 203 West St.
Rames & Co., 513 Greenwich St.
Richard & Gardner Co., Frank, 47 South St.
Rouse Sea Anchor Co., 15 Whitehall St.
Rudman & Scofield, 277 Pearl St.
Sack & Son, B., 38 South St.
Simpson & Co., Thos. I., 47 South St.

Standard Shippers Supplies Co., 32 Union Sq.
Steamship Outfitting Co., 29 South St.
Swan & Sons, Wm. H., 32 South St.
Thurlow & Son, B. T., 37 South St.
Tiebout, W. & J., 118 Chambers St., see p. 59
Topping Bros., 122 Chambers St.
Universal Ship Supply Co., 15 Whitehall St.
White, Wilfrid O., 38 Water St.
Wilson, Ltd., J. & R., 3 Jones Lane
Wilson, O. C., & K. R., 78 Dey St.

MARINE INSURANCE

Aetna Insurance Co., 63 Beaver St., New York
American Merchant Marine Ins. Co., 56 Beaver St., New York
Brazilian Warrant Co., Ltd., 88 Wall St., New York
British & Foreign Marine Ins. Co., Cotton Exchange Bldg., New York
Cohen & Co., Inc., David, 29 Broadway, New York
Despard & Co., 60 Wall St.
Diack, Inc., Clarnece, 82 Beaver St.
Duncan, Jackson & Duncan, 79 Wall St.
Elliott & Co., A. C., 16 Beaver St.
Fireman's Fund Ins. Co., 72 Beaver St., New York
Insurance Co. of North America, 27 William St., New York
Jennings & Cleaves, 62 William St.
Johnson & Higgins, 49 Wall St., New York
Kip, Inc., Chas. H., 11 Broadway
Koehler & Kemp, 16 Exchange Place.
Lambert Bros., Inc., 8 Bridge St.
McGee & Co., Wm. H., 15 William St.
Mackey & Abbes, 5 Nassau St.
Maes & Co., Inc., Jules, 80 Wall St.
Maritime Underwriting Agency, 1 S. William St.
Northern Underwriting Agency, 56 Beaver St.
Osborn, F. H. & C. R., 72 Beaver St.
Overseas Underwriting Agency, Inc., 27 William St.,
Pearce & Co., Inc., Neil, 1 Wall St.
Phoenix Assurance Company, 27 William St., New York
Potter Steamship Co., 11 Broadway
Produce & Warrant Co., 78 Wall St.
Rodgers & Carr, 80 Maiden Lane
Seabury & De Zafras, 120 Nassau St.
Smith, Earle C., 57 Maiden Lane
Stake & Co., Wm., 80 Maiden Lane
Standard Marine Insurance Co., 63 Beaver St., New York
Tuthill & Sons, A. S., 63 Beaver St., New York
Union Marine Insurance Co., 27 William St., New York
Vessel Agency, The, 5 South William St.
Washington Mar. Insurance Co., 51 Beaver St., New York
Waterhouse & Co., Frank, 149 Broadway, New York
Wells Shipping Co., 44 Whitehall St.
Wilcox, Peck & Hughes, 3 William St.
Williams Co., G. F., 68 Broad St.
Young & Co., Wm. H., 50 William St.

NEWPORT NEWS, VA.**TOWING**

C. & O. Railway Co.

LIGHTERAGE

Hasting Bros.
Skinner & Co., E. C.

BUNKERING, COAL

C. & O. Railway Co.
Hasting Bros.
Skinner & Co., E. C.

BUNKERING, FUEL OIL

Standard Oil Co.
Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Bie & Schiott Co.
Brabrand & Skou
Cadwell, E. W.
Hogshire Son & Co., Inc., E.
Kessel, & Co., Henry A.
Reyner & Son, Inc., J.
Wilkin Co., W. P.
Winslow & Co., D. A.

MARINE INSURANCE

Powell Trust Co.

NORFOLK, VA.**TOWING, LIGHTERAGE**

Cherry, J. L., Bank of Comm. Bldg.
 Clark & Co., Joseph M., Roanoke Dock
 Dempsey & Sons, Seaboard Bank Bldg.
 Hancock, W. H., Campbells Wharf
 Hastings Bros., Seaboard Bank Bldg.
 Hudson, A. J., 80 Roanoke Av.
 Hudson Transfer Co., Law Bldg.
 Lamberts Point Tow Boat Co., N. & W. Piers
 Marshall Towing Co., Campbells Wharf
 Nansemond Brick Corp., Board of Trade Bldg.

WRECKING

Hastings Bros., Seaboard Bank Bldg.
 Merritt & Chapman, Ledger-Dispatch Bldg.

BUNKERING, COAL

Baker-Whiteley Coal Co., Citizens' Bank Bldg.
 Castner, Curran & Bullitt, Inc., Citizens' Bank Bldg.
 Fort Dearborn Coal Co., Bank of Commerce Bldg.
 Griffin Brothers, Church St.
 Johns Brothers, Inc.
 Norfolk Coal & Ice Co., Inc., 545 Front St.
 Nottingham & Wrenn Co., The, 511 Front St.
 Stribling Fuel Co., Inc., 19th St.
 Taylor & Co., Inc., Geo. W., Haddington Bldg.
 West Virginia Coal Co., Citizens' Bank Bldg.

BUNKERING, OIL

Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Bramble & Scrivener, City Hall & Bush St.
 Butler & Co., Henry L., 118 W. Main St.
 Carlon & Co., Inc., F. K., Commercial Place
 Davidson Co., S., Jamestown Boulevard
 De Negri & Sons, J., 7 Campbells Wharf
 Drake, S. Lloyd, 604 Water St.
 Forrest & Dunn, Ft. 3rd St.
 Hampton Roads Sup. Co., Lamberts Point
 Hand & Sons, John E., 114 W. Plume St.
 Harney, N. M., 407 Water St.
 Hogshire-Hudgins & Co., 133 W. Main St.
 Hudgins & Son, R. W., 235 Water St.
 Hurst & Son, T. C., 8 Roanoke Dock
 Kessel Co., Henry A., 118 W. Main St.
 Marine Outfitting Co., 413 Williams St.
 Marine Supply Co., 543 Front St.
 Norden Ship Supply Co., 134 W. Main St.
 Platon & Co., C., Bush & City Hall Av.
 Stern, L. L., 943 W. Main St.
 Wilkins Co., Inc., W. P., Campbells Wharf
 Winslow & Co., D. A., Roanoke Dock

MARINE INSURANCE

Fidelity & Casualty of New York, 116 Brooke Av.
 Home of New York, 227 E. Plume St.
 Jacobs & Co., Law Bldg.
 Milwaukee Mechanics of Wis., 116 Brooke Av.

OSWEGO, NEW YORK**TOWING, LIGHTERAGE**

Ogdensburg Coal & Trans. Co., Ogdensburg, N. Y.

WRECKING

Hinckley, A. R., Water St.

SHIP CHANDLERS

Parsons, John S., Water St.

PENSACOLA, FLA.**TOWING, LIGHTERAGE**

Aiken Tow Boat & Barge Co.
 Pensacola Tow Boat & Lighterage Co.

BUNKERING, COAL

Cary & Co.
 Gilmore & Co., Frederick
 Pensacola Maritime Corporation
 Pensacola Supply Co.

BUNKERING, OIL

Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Oertin, N. McK., South Palafox St.
 Zelius, Alex., South Palafox St.
 Ray Hardware Co., W. A., South Palafox St.

MARINE INSURANCE

Fisher-Brown Ins. Agency
 Welles-Wentworth Ins. Agency
 Knowles Bros.
 Watson Agency

PHILADELPHIA, PA.**TOWING**

B. & S. Trans. Line, Pier 75, Ft. Dyott St.
 Boyer, Lewis, 113 Walnut St.
 Carey S. S., 135 S. 2d St.
 Davis, Samuel S., 1225 Beach St.
 Gallagher, Jas., 111 Walnut St.
 Hagan, Wm. R., 119 Walnut St.
 Harmon, Ferdinand, 135 S. 2d St.
 Hughes Sons, Tow and Trans. Co., A. S., 115 Walnut St.
 McAvoy, P. W., 117 Walnut St.
 McNally, Jas. J., 308 Walnut St.
 Martin, P. F., 111 Walnut St.
 Murray, Geo. R., 129 Walnut St.
 Red Star Tugs, Bourse
 Stannard Tow Boat Co., 241 Dock St.
 Tucker, L. B., 103 Walnut St.
 Walker, C. L., 113 Walnut St.
 Wall, Harry M., 111 Walnut St.

LIGHTERAGE

Delaware River Lighterage Co., 308 Walnut St.
 Donnelly, Thos. J., 308 Walnut St.
 Eastern Lighterage Co., 308 Chestnut St.
 Gildersleeve, Nelson H., Pier 1, S. Wharves
 Hagan & Co., Wm., 119 Walnut St.
 Independent Pier Co., 34 S. Wharves
 Kilam & Co., Chas., 34 S. Wharves
 Philadelphia Harbor Transfer Pier, 24 N. Wharves
 Philadelphia Trans. & Lighterage Co., 119 Walnut St.
 Schuykill Trans Co., 308 Walnut St.
 Thompson-Lockhart Co., 2636 Callowhill
 Tucker Bernard, 103 Walnut St.

WRECKING

Craemer Wrecking Co., 1220 Beach St.
 Gailey, Davis & Co.

BUNKERING, COAL

Delaware River Discharging Co., Camden, N. J.
 Howlett, M. P., Bourse Bldg.
 Tucker Stevedoring Co., 1018 Walnut St.

BUNKERING, OIL

Atlantic Refining Co., 3144 Passyunk Av.
 Crew-Levick Co., 111 N. Broad St.
 Gulf Refining Co., Widener Bldg.
 Pure Oil Co., Lafayette Bldg.
 Sun Oil Co., Finance Bldg.
 Texas Co., The, see pp. 61-64
 Vacuum Oil Co., Brown Bros. Bldg.

SHIP CHANDLERS

Anderson, Alfred, 214 Chancellor St.
 Anderson, Chas. E., Jr., 201 E. Allen
 Charlton, John, 221 S. Front St.
 Cooper, Alex., 201 S. Front St.
 Dee, Wm. V., Land Title Bldg.
 Farwell, Chas. P., 500 S. Dela. Av.
 Gamba, D., 220 Walnut St.
 Globe Ship Supply Co., 201 S. Front St.
 Gramigna & Sons, P., 315 S. 2d St.
 Halyburton, C., 123 Walnut St.
 Keegan & Co., Jos. J., 129 S. 2d St.
 Lipschutz H., 758 S. Front St.
 McClister Meaburn, 217 Walnut St.
 Marine Products Co., Drexel Bldg.
 Ocean Ship Chandlery Co., Ltd., 221 S. Front St.
 Olsen, O. P., 223 Dock St.
 Rames & Co., 340 S. 4th St.
 Risso Co., E., 338 Spruce St.
 Rushansky, Max, 1117 S. 2d St.
 Treffers, Peter, 217 Walnut St.

Webb & Son Co., Elisha, 136 S. Front St.
Wilson & Crawford, 12 N. Dela. Av.

MARINE INSURANCE

American S. B. & S. O. Mut. Ins. Co., 226 Walnut St.
Atlantic Mut. Ins. Co., 226 Walnut St.
Board Underwriters of N. Y., 207 Walnut Pl.
Hutchinson, Rivinus & Co., 425 Walnut St.
Ins. Co. of North America, 3d & Walnut Sts.
Marine Ins. Co., Ltd. of London, 425 Walnut St.
Mather & Co., 226 Walnut St.
O'Keeffe & Lynch, Inc., 411 Walnut St.
Royal Exchange Assurance Corp., 425 Walnut St.
Stokes, Packard, Haughton & Smith, 434 Walnut St.
Wilson & Co., 321 Walnut St.

PORT ARTHUR, TEX.**TOWING LIGHTERAGE**

Picton & Co., D. M.
Ryan Tow Boat Co., D. W., Merchants St. Bk. Bldg.
Sabine Ice, Water & Towing Co.
Veit, R. C., Realty Bldg.

BUNKERING, COAL

Basin Supply Co.
Sabine Ice, Water & Towing Co.

BUNKERING, OIL

Gulf Refining Co.
Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Adams & Co., John R.
Gulf Commissary Co.

MARINE INSURANCE

Steele, R. D.

PORTLAND, ME.**TOWING**

Central Wharf Tow Boat Co., 84 Commercial St.

LIGHTERAGE

Bennett Contracting Corp., 211 Commercial St.
Doyen & Co., P. H., Cottage Rd., S. Portland

BUNKERING, COAL

Pocahontas Fuel Co., 172 Commercial St.
Randall & McAllister, 84 Commercial St.
Wright Co., A. R., 350 Commercial St.

BUNKERING, OIL

Mexican Petroleum Corp., Ft. Kelsey St., S. Portland

SHIP CHANDLERS

Bell & Walker, 131 Commercial St.
Flitner-Atwood Co., 6 Commercial Wharf
Guptill Co., Chas. F., 175 Commercial St.
Jordan & Co., W. S., 102 Commercial St.
Sargent Lord Co., 12 Commercial Wharf
Sweet Co., The, C. T., 184 Commercial St.

MARINE INSURANCE

Portland Maritime Underwriters, 54 Exchange St.

PORTLAND, ORE.**TOWING**

Columbia Digger Co., 176 Burnside St.
Diamond Navigation Co., 248 Hawthorne Av.
Hosford Trans. Co., Ft. Alder St.
Shaver Trans. Co., Ft. Davis St.
Willamette & Columbia River Towing Co., Pine St. Dock

WRECKING

Columbia Wrecking Co., Henry Bldg.
O. K. and Rose City Wrecking Co., 455 Everett St.
Sound Wrecking Co., 363 Stanton St.

BUNKERING, COAL

Ambrose, Riddell & Co., Worcester Bldg.
Pacific Coast Coal Co., Front & Raleigh Sts.

BUNKERING, OIL

Associated Oil Company
Shell Oil Company
Standard Oil Company
Union Oil Company

SHIP CHANDLERS

Beebe Co., The, 182 Morrison St.
Hagemann, F. C., 3 1st St.
Hardy, Geo. E., Oregon Bldg.
Northwest Plug Co., 554 E. 10th St.
Oregon Marine & Fisheries Supply Co., 107 1st St.
Portland Marine Supply Co., 229 Ankeny St.
Portland Ship Building Co., Ft. Nebraska St.
Viking Marine Paint Co., Inc., 487 N. 29th St.
Western Spar Co., Spalding Bldg.

MARINE INSURANCE

Balfour, Guthrie & Co., 353 Oak St.
Fireman's Fund Insurance Co., Board of Trade Bldg.
Oregon Pacific Co., Wilcox Bldg.
Sargent & Co., C. P., Board of Trade Bldg.
Seeley & Co., Marine, Inc., Board of Trade Bldg.

PORTSMOUTH, N. H.**TOWING, LIGHTERAGE, BUNKERING**

Matthews, Jr., E. C., First Nat. Bank Bldg.

SHIP CHANDLER

Jackson, W. S., 111 Market St.

SAN DIEGO, CAL.**TOWING, LIGHTERAGE, WRECKING**

Spreckels Companies, 209 Union Bldg.
Star & Crescent Boat Co., Ft. Broadway

BUNKERING, COAL

Pacific Wood & Coal Co.
Spreckels Bros., Commercial Co.

BUNKERING, OIL

Standard Oil Co., Ft. 27th St.
Union Oil Co.

SHIP CHANDLERS

Hendry Co., C. J., 548 West C St.
McCaffrey Bros., 311 W. Broadway

MARINE INSURANCE

Barney & Barney, Scripps Bldg.
Salmons, Frank A., Southern Title Bldg.
Wankowski & Co., V., Spreckels Bldg.

SANDUSKY, OHIO**TOWING LIGHTERAGE, WRECKING**

Pringle Barge Line

BUNKERING, COAL

Hunt & Weiss

Nielsen, C. A.

Smith, Bert

SHIP CHANDLERS

Rinkleff Co., Geo. M.

SAN FRANCISCO, CAL.**TOWING, LIGHTERAGE**

California Lighterage Co., Howard St. Wharf
Channel Tug & Lighterage Co., Ft. 3d St.
Coquille Tow Boat Co., 16 California St.
Crowley Launch & Tugboat Co., 21 California St.
Halvorsen & Co., H. C., 19 Leidesdorff
Oakland Launch & Tugboat Co., 21 California St.
Peterson, Inc., Henry C., Howard St. Wharf

WRECKING

Oakland Launch & Tugboat Co., 21 California St.
Whitelaw Wrecking Co., 336 Main St.

BUNKERING, COAL

City Coal Company, 100 Brannan St.
King Coal Company, 369 Pine St.
Rolph Navigation & Coal Co., 60 California St.
Waterhouse & Co., Frank, Hearst Bldg.

BUNKERING, OIL

Associated Oil Company, Sharon Bldg.
General Petroleum Co., 310 Sansome St.
Shell Co. of Calif., 343 Sansome St.
Standard Oil Company, 200 Bush St.
Union Oil Company, Mills Bldg.

SHIP CHANDLERS

Ajax Supply Co., 58 Clementina St.
 Bain & Co., C. E., 56 Sacramento St.
 Bloom & Co., A., 45 Washington St.
 De Lano Bros., 70 Spear St.
Durkee & Co., C. D., 320 Market St., see p. 58
 Edwards & Sons, D., 92 Embarcadero St.
 Edwards, M. A., 73 Steuart St.
 Foard-Barstow Ship Chandlery Co., 25 Drumm St.
 Gerda & Johnson, 115 Steuart St.
 Glavanich, Nicholas G., 154 Steuart St.
 Haviside, Withers & Davis, 56 Steuart St.
 Hendry Co., C. J., 25 Main St.
 Hendry, G. W., 332 Ritch St.
 Johnson, Joseph & Josselyn Co., G. M., 56 Sacramento St.
 Meyer & Co., Albert, 137 Steuart St.
 Plummer & Co., Geo. E., 74 Sacramento St.
 Pritchard Co., F. L., 140 Steuart St.
 Purchase & Supply Co., 244 California St.
 Steward Davit & Equip. Corp., 320 Market St.
 Weeks Howe Emerson Co., 90 Market St.
 Western Naval Stores Co., 667 Thornton St.
 Whitelaw Wrecking Co., 336 Main St.
 Wilson, Inc., J. & R., 127-135 Steuart St.

MARINE INSURANCE

Automobile Ins. Co. of Hartford, Conn., 333 Pine St.
 Commercial Union Assurance Co., Ltd., 558 Sacramento St.
 Federal Ins. Co., 149 California St.
 Gerard Fire & Mar. Ins. Co., 576 Sacramento St.
 Hartford Fire Ins. Co., 438 California St.
 Insurance Co. of N. A., 225 Sansome St.
 Northwestern Fire & Mar. Ins. Co., 114 Sansome St.
 St. Paul Fire & Mar. Ins. Co., 28 Leidesdorff St.
 Thames & Mersey Mar. Ins. Co., 302 California St.

SAVANNAH, GA.**TOWING, WRECKING**

Propeller Tow Boat and Wrecking Co., 24 East Bay
 Rourke & Son, John, East Bay
 Savannah Lighterage & Transfer Co., 28 East Bay
Southland Steamship Co. (Shipbldg Dept.), see p. 101
 Standard Fuel & Supply Co., 410 East Bay

LIGHTERAGE

Savannah Lighterage & Transfer Co., 28 East Bay

BUNKERING, COAL

Herman Coal & Wood Co., 126 West Bay
 Standard Fuel & Supply Co., 410 East Bay
 Taggart & Co., Savannah Bank & Trust Co.

BUNKERING, OIL

Gulf Refining Co.
 Standard Oil Co. (Under Construction)

Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Chandler & Son, F.
 Georgia Supply Co., 32 West Bay
 Marine Hardware & Supply Co., 512 East Bay
 Norden Ship Supply Co., 25 East Bay
 Olsen & Co., Inc., O. P., 11 West Bay
 Savannah Ship Chandlery & Supply Co., 201 W. River St.

SEATTLE, WASH.**TOWING**

Cary-Davis Towing Co., Pier A
 Chesley Tug & Barge Co., Ferry Dock
 Crosby Tug & Barge Co., Ferry Dock
 Lillico Launch & Tug Boat Co., Pier 3
 Pacific Tow Boat Co., Pier 1
 Pioneer Towing Co., Ft. Pike St.
 Puget Sound Tug Boat Co., Walker Bldg.
 Rouse Towing Co., Ft. 15th Av., N. W.
 Shiveley Tow Boat Co., N. Y. Block
 Washington Tug & Barge Co., Colman Dock
 Webster Tug Co., 2718 Westlake Av., N.
 Wick Towing Co., Ft. 20th Av., N. W.

LIGHTERAGE

Chesley Tug & Barge Co., Ferry Dock
 Crosby Tug & Barge Co., Ferry Dock
 Drummond Lighterage Co., 2500 26th Av., S. W.

Harper Barge & Lighterage Co., L. C. Smith Bldg.
 Lillico Launch & Tug Boat Co., Pier 3
 Pacific Tow Boat Co., Pier 1
 Washington Tug & Barge Co., Colman Dock

WRECKING

Crosby Tug & Barge Co., Ferry Dock
 Washington Tug & Barge Co., Colman Dock

BUNKERING, COAL

Northern Pacific Ry., West Seattle
 Pacific Coast Coal Co., Water Front

BUNKERING, OIL

General Petroleum Co.

Standard Oil Co.

Union Oil Co.

SHIP CHANDLERS

Broom, George, Pier 8
 Marine Supply Co., Pier 1
 Pacific Net & Twine Co., 1213 Western Av.
 Sunde & d'Evers Co., Colman Dock

MARINE INSURANCE

Aetna Ins. Co. of Hartford, Colman Bldg.
 Alexander & Baldwin, Melhorn Bldg.
 Fireman's Fund Ins. Co., Colman Bldg.
 Frederick & Co., F. A., Mutual Life Bldg.
 Marine Board of Underwriters, Colman Bldg.

TACOMA, WASH.**TOWING**

Cascade Tug Boat Co., Milwaukee Waterway
 Foss Launch & Tug Co., S. 4th & Dock St.
 Hunt & Olson Tug Boat Co., Municipal Dock
 Tacoma Tug & Barge Co., No. Pac. Docks

LIGHTERAGE

Cascade Tug Boat Co., Milwaukee Waterway
 Foss Launch & Tug Co., S. 4th & Dock St.
 Tacoma Tug & Barge Co., No. Pac. Docks

BUNKERING, COAL

Durham Colliery Co., Tacoma Bldg.
 Lane Coal Co., F. M., Tacoma Bldg.
 Mountain Coal Co., Fidelity Bldg.
 Northern Pacific Ry. Co., No. Pac. Wharf
 Ozark Coal Mining Co., Tacoma Bldg.
 Pacific Coast Coal Co., 1801 Dock St.

BUNKERING, OIL

Standard Oil Co., P. O. Box 1648

SHIP CHANDLERS

Doud-McFarlane Mach. Co., 1501 Dock St.
 Larsen & Sons, I. M., 806 A St.
 Ruddy & Co., J. P., 1009 A St.

MARINE INSURANCE

Fowler & Whitehouse, Inc., Equitable Bldg.
 Garretson Fidelity Agency, Fidelity Bldg.
 Hansen & Rowland, Tacoma Bldg.
 Hellar, Lyon & Co., National Realty Bldg.
 Sweetland & Co., F. H., Perkins Bldg.

TAMPA, FLA.**TOWING, LIGHTERING**

Shore, Philip, Frank Sq. Bldg.

WRECKING

Edwards Construction Co.

BUNKERING, COAL

Tampa Coal Co.

BUNKERING, OIL

Gulf Refining Co.,
 Mexican Petroleum Co.
 National Petroleum Co.
 Standard Oil Co.

Texas Co., The, see pp. 61-64

SHIP CHANDLERS

Fielder & Mitchell
 Greene Co., C. W.

MARINE INSURANCE

Fielder, W. M.
 Hendry & Knight Co.
 McKay, J. C., Citizens' Bank Bldg.

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricka. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.
M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
ALABAMA								
Alabama D. D. & Shipbldg. Co. Mobile	S. R.S.	L. & N.	D. R. Dunlap	E. L. Merkel, Jr.		A. Stout	F.D. 10000 T. F.D. 3400 M.R. 1200 M.R. 200 S.D. 980 S.D. 428 None	23 18 10½, 12 5-6 10 10
Chickasaw Shipbldg. & Car Co. Chickasaw, Mobile Co.	S.	So. Ry.	Geo. G. Crawford Birmingham	Geo. H. Gray Birmingham	C. J. Helbak	B. E. Meurk		
Henderson Shipbldg. Co., Inc. Mobile	R.S. R.W.	L. & N.	Frank Henderson & Gen. Mgr.	Address the Co.			M.R. 2500	14-19½
Kelly D. D. & Shipbldg. Co. Mobile	S.&W.	L. & N.	T. J. Kelly	Mark S. Andrews			M.R. 1800	11-17
Mobile Shipbuilding Co. Mobile	S.	L. & N.	H. L. Brittain	T. A. Finnegan				
Murnan Shipbuilding Corp. Mobile	S.&W.	L. & N.	Solomon F. Glenn	V.-Pres. & Gen. Mgr.: Henry C. Murnan	Secy. & Treas.: John F. Glenn		M.R. 800	6
U. S. Steel Corp. Plant Mobile	S.	L. & N.	No Report					
CALIFORNIA								
Arques, C. L. 1020 Lombard St., San Francisco	B.&D.		C. L. Arques	C. L. Arques	C. L. Arques	C. L. Arques	M.R. 1200 M.R. 600 M.R. 250	
Banning Shipyard San Pedro	S. R.G.		Wm. Muller	Wm. Muller	Wm. Muller	Wm. Muller		
Barnes & Tibbitts S. B. & D. D. Co. Alameda	W. R.G.	S.P.	W. G. Tibbitts	J. J. Barnes	J. D. Barnes	James Pringle	M.R. 4000 M.R. 2500	23 18
Benicia Shipbuilding Corp. Benicia	W.		L. S. Jones					
Bethlehem Shipbuilding Corp., Ltd. Union Plant, San Francisco	S. R.S.	S.P.	For officials see Bethlehem Shipbuilding Corp., Ltd.,			Bethlehem, Pa.	D.D. 1096'x120' D.D. 750'x103' 3 F.D. to 10000 T. 2 M.R. to 4000 T.	40 28
Bowes & Andrews 153 Stewart St., San Francisco	R.W.		E. C. Bowes & Gen. Mgr.	Gen. Mgr.: N. Andrews G. R. Crofut				
Chandler Shipbuilding Co., R. J. Wilmington	W. B., etc.			John Craig				
Craig Shipbuilding Co. Long Beach	S.							
Cookson & Callahan San Pedro	W.&Y. R.W.		Chas. W. Cookson	C. D. Callahan	C. D. Callahan	C. D. Callahan		
Crowley Launch & Tugboat Co. East Oakland	T.&B.	S.P. W.P. S.P.	Thomas Crowley, Pier 14, S. Fran. J. Fellows	John L. Crowley, Pier 14, S. Fran. Gen. Mgr.: V. B. Stewart	W. Westman H. H. Evans	H. Petsch J. L. Evans	M.R. 600 M.R. 300 M.R. 600 M.R. 300 M.R. 75	11½ 6 18 16 10
Fellows & Stewart, Inc. Wilmington	W.							

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Dericks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships. M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Hammond Lumber Co. Eureka	W.	N. W. P.	A. B. Hammond	W. R. McMillan	Wm. McDade	C. G. Hightower	None	
Hanlon D. D. & Shipbuilding Co. Oakland	S.	S.P.	D. J. Hanlon	C. H. Brown	J. F. Mooney	J. F. Mooney	M.R. 4000 D.D. 12000 F.D. 3500	20
Long Beach Shipbuilding Co. Long Beach	S. R.S.	S.L. P. E.	Chair. of Board: J. F. Craig	F. W. Philpot				
Los Angeles Shipbldg. & D. D. Co. San Pedro	S. R.S.	S.P. P. E.	Fred L. Baker	L. R. McFie	L. E. Caverly	L. E. Caverly	F.D. 12000	25
Main Iron Works 16th & Daggett Sts., San Fran.	S.	S.P.	A. Z. High	B. W. Bengston	A. Sperry	R. N. Miller	F.D. 2000 2 M.R. 7000 M.R. 6000	
Moore Shipbuilding Co. Oakland	W. S.	S.P. W. P.	George A. Armes	G. Waites				
Nunes Bros. Sacramento	T.		No Report					
Pacific Coast Shipbuilding Co. Bay Point	S.	S.P.	Furnished D. C. Seagrave San Francisco	J. A. Smiley	C. J. Daly	J. P. Baloun	None	
Pacific Marine & Constr. Co. San Diego	C.	S.F. S.F.	E. M. Scofield	S. E. Lewis				
Rolph Shipbuilding Co. Rolph, Humboldt Co.	W. R.W.		James Rolph, Jr.	John D. Stelling				
San Diego Marine Constr. Co. San Diego	Boats to 150 ft. C.	S.F.	O. J. Hall	Address the Co.	Carl Clive		3 M.R. 100	10
San Francisco Shipbuilding Co. Gov't. Id., Oakland	S.	S.P. S.F. S.P.	Leslie W. Comyn	A. T. Atkinson	Thos. Crawford	V. H. Poss	None	
Schaw-Batcher Co. Ship Works So. San Francisco	S.		J. A. Talbot	Address the Co.	G. E. Silliman	H. O. Shuster	None	
Southwestern Shipbuilding Co. E. San Pedro	S.	L.A. S.L.	Marco H. Hellman	J. J. Wilson	J. J. Toohey	H. O. Shuster	None	
Stephens Bros. Stockton	Harbor Craft		No Report					
Stone & Son, W. F. Oakland	W. R.W.	S. P. W. P.	W. F. Stone	Lester F. Stone	W. F. Stone	W. F. Stone	None	
Terminal Ways & Machy. Co. Long Beach	W.	P. E. & S. L.	Superintendent: C. E. Givisbuk	C. E. Givisbuk	C. E. Givisbuk	C. E. Givisbuk	1 M.R.	
Twigg & Sons, John 694 Illinois St., San Francisco	T. Y. B.	S. P. S. F.	Partnership: John F. Twigg	Partnership: Jas. I. Twigg			M.R. 90	10
Union Construction Co. Oakland	S.	S. P.	W. W. Johnson	A. J. Farnsworth	J. J. Coney	A. Andrew		
Western Pipe & Steel Co. 444 Market St., San Francisco	R.S.	W. P.	See Schaw-Batcher	San Francisco,	for all data.			

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships. M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
CONNECTICUT								
Connecticut Ship & Constr. Co. New Haven	B.	N. Y., N. H.	Frank H. Andrews	Frank H. Andrews	J. Ernest Marr	J. Ernest Marr	M.R. 350	6-13
Dauntless Shipyard, Inc. Essex	T. W. to 100'	& H.	E. N. Way	Walter B. Brash	E. N. Way	F. H. La Pierre	M.R. 100' long	
Gildersleeve Shipbuilding Co. Gildersleeve	B.	& H.	No Report Furnished					
Groton Iron Works Groton	S.	N. Y., N. H.	E. A. Morse					
Lake Torpedo Boat Co. Bridgeport	T.	& H.	H. S. Miller	H. C. Stevens	W. G. Esmond	J. B. Frauenfelder	M.R. 500	14
Miller Yacht Yard So. Norwalk	Y.	N. Y., N. H.	E. H. Miller	E. H. Miller	Chas. Smith		6 M.R. 40	7
Pendleton Bros. Mystic	R.G. W.	& H.	F. S. Pendleton, 130 Pearl St., New York	F. S. Pendleton, 130 Pearl St., New York				
Ship Constr. & Trading Co. Stonington	W.		Frank J. Fulton, 11 B'way, N. Y.	L. A. Chappell				
Thames Tow Boat Co., The New London	R.W. T. & B. R.G.	N. Y., N. H. & H.	L. A. Chappell				M.R. 275' M.R. 175'	18½ 14½
DELAWARE								
Abbott Shipbldg. Co., Wm. G. Milford	B.		Gen. Mgr.: W. G. Abbott					
American Car & Fdry. Co., Jackson & Sharp Plant, Wilmington	W. R.G.	Penn.	No Report Furnished				M.R. 1000 M.R. 600	
Bethlehem Shipbldg. Corp., Ltd. Harlan Plant, Wilmington	S. R.S.	Penn.	For officials see Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa.				D.D. 330'x40'	12
Delaware Shipbuilding Co. Seaford	W. R.W.		I. E. Willey, 25 Beaver St., New York	James Bradford	N. Karfve	N. Karfve	None	
Pusey & Jones Co., The Wilmington	S.	Penn.	C. Hannevig	W. M. Vinyard	Wm. Debuty	W. S. Vinyard	None	
Vinyard Shipbuilding Co. Milford	W. T.		Gen. Mgr.: W. M. Vinyard					
FLORIDA								
Anclote Shipbuilding Co. Tarpon Springs	R.		Gen. Mgr.: F. D. Chidester	Geo. Prissman	Gen. Mgr.: Geo. L. Roberts		2 M.R. 400	18
Avery & Roberts Mar. Ways Co., Inc. St. Petersburg	Small W.	A. C. L. S. A. L.	A. P. Avery					

SHIPBUILDING COMPANIES OF THE UNITED STATES

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Bentley & Sons Co., The A. Jacksonville	C.	A. C. L.	Thos. Bentley, Toledo, O.	J. B. Williams	Wks. Mgr.: H. E. Cochran		None	
Bruce Dry Dock Co., The Pensacola	R.S. R.W.	L. & N. G. F. & A.	Address the Co.	Secy. & Treas.: T. A. Johnson			D.D. 6000 D.D. 1200	18 12
Daniels Co., Oscar Tampa	S.	S. A. L. A. C. L.	Oscar Daniels	D. E. Baxter				
Denton-Shore S. B. Co. Tampa	B.		Philip Shore					
Florida Shipbuilding Co. So. Jacksonville	B.			Gen. Mgr.: J. K. Williams				
Gibbs Gas Engine Co. So. Jacksonville	S.		Geo. W. Gibbs, Jr.	G. M. Evans	J. H. Howard	H. L. Scott	F.D. 1200	
Gulf Shipbuilding Co. Millville	to 250' W.		H. H. Boyer		A. B. Parks			
McCoy Bros. Holly Hill	Y.	F. E. C.	B. F. McCoy	Wm. F. McCoy	Wm. F. McCoy	Wm. F. McCoy	M.R. to 110'	5
Merrill-Stevens Shipbldg. Corp. Jacksonville	S. S.R.	A. C. L. S. A. L. So. Ry. L. & N.	L. Prior	C. W. Hendley	F. Cornes	Sold to Ness Tdg. Co., Savannah, Ga.	F.D. 6500 F.D. 4500	28 28
Pensacola Shipbuilding Co. Pensacola	S. W.		No Report Furnished					
Poage & Co. Tampa	W.	S. A. L. A. C. L. L. & N.	J. M. Poage	F. E. Wells				
Saunders & Co., E. E. Pensacola	B.		F. E. Wells					
Tampa Dock Co. Tampa	S. R.G.	S. A. L. A. C. L.	A. J. Knight	Jos. P. Henderson	Ass't Gen. Mgr.: L. E. Knight		M.R. 3500	10' 10 1/2' 3
Tampa Steam Ways Co. Tampa	W. R.W. R.G.	S. A. L. A. C. L.	I. S. Craft	J. M. Henderson	W. W. Sweatt	Z. A. Middle- brooks	M.R. 180' M.R. 170' M.R. 40'	16
Warren Fish Co. Pensacola			J. F. Taylor	J. F. Taylor	Chas. Martins		M.R. 300	
Wm. Curry's Sons Co. Key West	R.G.	F. E. C.	M. W. Curry	Oliver Bros., Inc., New York	B. D. Trevor	B. D. Trevor	M.R. 1500 M.R. 500	7-12 5-9
GEORGIA Brunswick Marine Constr. Corp. Brunswick	S. & W. R.G.	A. C. L. So. Ry.	Willard V. Taylor	J. R. McQuaig	E. J. Radford	W. S. Nathan	M.R. 250'	
Brunswick Shipbuilding Co. Brunswick	W.	So. Ry.	H. W. Taylor	Geo. H. Cook	Sailing Vessels to 600 Tons Net			
Darien Shipbuilding Co. Darien	W.		Robert Manson					

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Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Southland Steamship Co. Savannah	R.S. R.W.	S. A. L.	Gen. Mgr.: Wayne Cunningham No Report	J. L. Meredith		W. S. Tutwiler	None	
Terry Shipbuilding Corp. Savannah	W.	So. Ry.	A. N. Eastmond, 29 B'way, N. Y.	R. Butler	C. T. Soudeen	A. N. Sheldander	None	
U. S. Maritime Corp. Brunswick	R.G.	B. & O.	C. G. Wilkinson	Jas. H. Craggs, Jr. & Gen. Mgr.			None	
Wilkinson Machine Co. Savannah	R.G.	A. C. L. S. A. L.						
ILLINOIS								
American Shipbuilding Co. Chicago (Main Off. Cleveland)	S. R.G.	Penn.	M. E. Farr, Cleveland, O. Fabricates	W. H. Gerhauser, Cleveland, O. Ship Material	A. W. Cross, Cleveland, O.	J. C. Workman, Cleveland, O.	D.D. 570'x72' D.D. 727'x90'	16 16'-3"
Chicago Shipbuilding Co. So. Chicago								
Kraft Shipyard & D. D. Co. 9367 Harbor Av., Chicago	R.G.	C. R. I.	C. W. Kraft	E. L. Habermeyer	Jas. A. Rogan			
Lake Shipbuilding Co. 9200 Mackinaw Av., Chicago	R.S. R.W.	C. R. I.	Daniel F. Rana- han	E. M. Hogan			M.R.; Size un- known	
Indiana Shipyard & Docks Co. Jeffersonville	River Craft			V.-Pres.: James Howard			M.R.; Small	
LOUISIANA								
Clooney Constr. & Towing Co. Westlake	B. Large S.			T. J. Clooney		J. P. Elvin		
Doullut & Williams Shipbldg. Co. New Orleans	So. Ry.		Capt. N. P. Doullut	F. W. Maller	William Michell			
Jahncke D.D. & Ship Repair Co., Inc. 233 St. Maurice Av., New Orleans	R.G.	So. Ry. L. & N. S. P.	Ernest L. Jahncke	J. E. Smith	Works Mgr.: C. E. Watson		F.D. 10000 F.D. 8000 F.D. 6000	22 22 20
Johnson Iron Wks., D. D. & Ship- building Co., Inc. New Orleans	S. R.G.	So. Ry.	Wilmer H. John- son	Jos. Donaldson	V.-P. & Gen. Mgr.: Warren John- son		F.D. 5000 F.D. 2000 F.D. 250	20 15 4
Louisiana Shipbuilding Corp. Slidell	W. B.		Gen. Mgr.: L. C. Jenkins					

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S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships. M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock.						
Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer
Pontchartrain Ship Yard, Inc. Madisonville	B. T. R.G.		Theodore Den- dinger, Jr. Max M. Levy	Theodore Den- dinger, Jr. H. B. Emmett		Thos. H. Roberts
Stern Fdry. & Machy. Co. 1620 Annunciation St., N. O.						
MAINE						
Atlantic Coast Co. Boothbay Harbor	W.		Gen. Mgr.: W. D. Washburn	W. D. Noyes		
Bath Iron Works, Ltd. Bath	S.	M. C.	Wm. T. Cobb	J. L. P. Burke	John McInnes	V.—Pres.: C. P. Wetherbee
Bangor-Brewer Shipbuilding Co. Brewer	W.			L. M. McDougall		Specialize on Large Steam Passenger Steamers
Camden Anchor-Rockland Mch. Co. Camden	Y. to 125' R.G.	M. C.	John Bird	Treasurer: G. H. Benner	Gen. Mgr.: John Bird	15
Camden Yacht Bldg. & Ry. Co. Camden	R.G.		R. Robinson	C. A. Benner	W. P. Stopler	M.R. 700 M.R. 300
Cobb Shipbuilding Co., Francis Rockland	W. Sail W.	M. C.	H. N. McDonald			
Crosby Navigation Co. Richmond	W. R.G. W.		C. K. Crosby, Bath, Me. James C. Hamlen, Portland	E. S. Crosby, Bath, Me. Roy M. Springer, Portland	C. E. Clements	16
Cumberland Shipbuilding Co. So. Portland						
Doyen, Philip So. Portland	Wood Schoon. W.		Z. E. Cliff, Somer- ville, Mass. W. C. Job	Z. E. Cliff	I. W. Reed	
East Coast Ship Co. Boothbay Harbor	R.W. W.	M. C.		R. D. Megee	R. D. Megee	
Job Shipyard Corp. Machias						
Kelley-Spear Co. Bath		M. C.	Gen. Mgr.: Harry B. Sawyer			
Johnson Iron Works, Ltd. New Orleans	S. T. & B. Boats		C. A. Morse	Gen. Mgr.: War- ren Johnson		
Morse & Son, C. A. Thomaston						
Newcastle Shipbuilding Co. Newcastle	W.	M. C.	Richard Diebold	Richard Diebold	L. B. Wardwell	None
Noyes Machine Co. So. Portland	Mchy. Rep.		Proprietor: J. C. Noyes			

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M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Percy & Small, Inc. Bath	W. R.W. R.G.	M. C.	Samuel R. Percy	Gen. Mgr.: Samuel R. Percy				
Portland Ship Ceiling Co. Portland		M. C.	Clinton T. Swett	E. S. Waterhouse		A. Harrow	Ceilers of Cargoes	Steve- dores
Portland Shipbuilding Co. Portland	W.		No Report Furnished					
Rice Bros. Corp. East Boothbay	S. & Y. W. to 4000 T.		Wm. E. Rice	Henry W. Rice	Gen. Mgr.: Henry W. Rice	J. A. Stevens		
Russell Shipbuilding Co. Portland	W.		Gen. Mgr.: W. B. French	W. B. French				
Sandy Point Shipbuilding Co. Sandy Point	W.		H. L. Hopkins	Gen. Mgr.: L. A. Gardner				
Stockton Yard, Inc. Stockton Springs	S.	M. C.	W. A. Thompson, Jr., 17 Battery Pl., New York	A. R. Weber	Gen. Mgr.: Geo. B. Drake			
Texas Steamship Co., The Bath	W.		No Report Furnished					
Ward Shipbuilding Co. Kennebunkport								
MARYLAND Baltimore D. D. & S. B. Co., The Baltimore (2 yards)	S. R.G.	Penn. B. & O. W. Md.	Holden A. Evans	Wheeler Glenn	V.-P. & Gen. Mgr.: J. M. Willis	D. D. Thomas	D.D. 600' D.D. 430'	9-13
Booz Bros. 815 Key Highway, Baltimore	W. R.W.	Penn. B. & O. W. Md.	Address the Co.	Wm. B. Booz			M.R. 1800	7-9
Cambridge Mfg. Co. Cambridge	W. R.W.	P. B. & W.	Jas. C. Leonard	Jas. C. Leonard	Jas. C. Leonard		M.R. 150	11 5
Chance Marine Construction Co. Annapolis	Y. & T. B.	W. B. & A. Md. Elec.	Charles E. Chance	Charles E. Chance	W. R. Chance	W. R. Chance	M.R. 250 M.R. 20	8
Chesapeake Marine Ry. Co. Baltimore	B.	Penn. B. & O.		E. A. Craig				
Coastwise Shipbuilding Co. Baltimore	B. & Sail	Penn. B. & O.		F. A. Brandy				
Crisfield Marine Railways Crisfield	R.G.		Chas. A. Dana	Chas. A. Dana	Chas. A. Dana	Chas. A. Dana	M.R. 150'	
Davis & Son, Inc., M. M. Solomons	W. T. & B.	Md. & V.	M. M. Davis	Secy. & Treas.: J. N. Trainer, Jr., 366-5th Av., New York	Gen. Mgr.: C. E. Davis	Moses, Pope & Trainer, 366-5th Av., New York	M.R. 300 T.	

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Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill	
Globe Shipbldg. & D. D. Co. Under Construction, Baltimore	S. R.G. Mchy. Rep.	B. & O.	B. C. Cook	Mr. McCawley		Mr. Danielson	F.D. 500'x100'		
McIntire & Henderson 821 Key Highway, Baltimore	S. R.S. R.	B. & O. Penn. Penn.	For officials see Bethlehem Shipbldg. Corp., Ltd., Bethlehem, Pa.	J. E. Henderson			None		
Bethlehem Shipbldg. Corp., Ltd. Sparrows Pt. Plant, Sparrows Pt.			No Report Furnished				F.D. 20000 F.D. 6000		
Nilson Yacht Bldg. Co. Baltimore	Small B.		No Report Furnished						
Rohde & Sons Co., C. L. Baltimore	W. to 250 ft. T. & B.	N.Y. P. & N. B. C. & A.	John S. Smith	E. W. Hall			M.R. 250 T.		
Smith & Williams Co. Salisbury	S.	B. & O.	No Report Furnished	R. S. Mueller			M.R. 4000 T. 380'x70'	15-20	
Spedden Shipbuilding Co., The Baltimore				Treasurer: C. F. Pick	V.-President: F. C. Bayne	Secretary: O. A. Shillingburg	Ship Joiners & Cellars		
Union Shipbuilding Co. P.O. Box 475, Baltimore	W.		H. W. Robertson	G. F. Beckerley	I. W. Wright	G. F. Beckerley	None		
Wagner Co., Lewis Office, 17 S. Gay St., Baltimore	W.		No Report Furnished						
White Haven Shipbuilding Co. White Haven									
Woodall & Co., Wm. E. Baltimore									
MASSACHUSETTS									
Atlantic Works 80 Border St., E. Boston	R.S.	B. & A.	Fred McQuesten	J. M. Robinson	Supt.: E. P. Robinson		M.R. 2000 M.R. 1000 M.R. 500	Build Mchy.	
Bertelsen & Petersen Engrg. Co. 256 Border St., E. Boston	R.G.	B. & A.	Jens Bertelsen	Willis E. Carsley			None		
Bethlehem Shipbldg. Corp., Ltd. Fore River Plant, Quincy	S. R.S. Y. to 100 ft.	N. Y., N. H. & H.	For officials see Bethlehem Shipbldg. Corp., Ltd., Bethlehem, Pa.				F.D. 10000 3 M.R. 30		
Bigelow, R. Monument Beach	W.	B. & M.	S. W. K. Brooks	S. W. K. Brooks	S. W. K. Brooks	S. W. K. Brooks	None		
Brooks, S. W. K. 139 Coleridge St., E. Boston	R.W. Y.		Proprietor: E. H. Brown C. S. Gurney				M.R. 100 T. 50'		
Brown Boat Yard Taunton	W.								
Cape Cod Shipbuilding Co. Wareham	Small W. & S. R.G.		B. B. Crowninshield	J. C. Oliver	S. W. Jennings	F. Fitzler			
Crowninshield Shipbuilding Co. So. Somerset							M.R. 5000 T. M.R. 1000 T. M.R. 25 T.		

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M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Green Co., Richard T. 211 Marginal St., Chelsea	S. & W. R.G.	B. & M.	M. Thomas Green	John M. Shaw	Supt.: T. E. McCarty		M.R. 250'x60' M.R. 100'x23' M.R. 220'x40'	16 16 17
James & Son, John F. Essex	W.	B. & M.	E. B. James	E. B. James	Specializes Fish Schooners		None	
Lawley & Son Corp. Neponsit	Y.		No Report Furnished	R. S. Aldrich				
Murphy & Greenlaw Calais	W.		M. L. Gilbert	A. J. Wilson	A. J. Wilson	A. J. Wilson	M.R. 2500 M.R. 1000 3 M.R. Small	17 14
New Bedford D. D. Co. 22 Water St., Fairhaven	R.G.		Frank C. Pearce	D. Sherman Tarr		Chas. Wilkins	M.R. 250	18
Rocky Neck Marine Ry. Co., The Gloucester	R.G.	B. & M.	E. C. Eastman, 94 Devonshire St., Boston	This plant now building.	Also operates small plant at West Britt Bros.)	2 M.R. under Lynn. (Formerly construction		
Shawmut Marine Co. Revere	Y. to 200 ft.	B. & M.	Charles F. Crowell	H. M. Duley	A. C. McNair	A. C. McNair	D.D. D.D. D.D.	18.28' 16.30' 12.61'
Simpson's Patent D. D. Co. East Boston	R.G.	B. & A.	Owner: A. D. Story				M.R. 3000	
Story, A. D. Essex	W.		Gen. Mgr.: Wm. R. Green					
Winnisimmet Shipyard, Inc. Chelsea	R.G.							
MICHIGAN								
American Shipbuilding Co. Detroit	S. R.G.	M. C. G. T.	M. E. Farr, Cleveland, O.	W. H. Gerhauser, Cleveland, O.	A. W. Cross, Cleveland, O.	J. C. Workman, Cleveland, O.	D.D. 367½' x74'	16½
Dachet-Carter Shipbuilding Co. Benton Harbor	W. to 200'	M. C. Big 4, P. M.		A. B. Carter	P. Dachel	H. Lenfest	F.D. 125'x24'	10
Defoe Shipbuilding Co. Bay City	T. & Y.	M. C. P. M., G. T.	H. J. Defoe	A. D. Defoe	John Lind	Frank Elsen		
Great Lakes Engrg. Works* River Rouge	S.	M. C. G. T.	J. A. Ubsdell & Gen. Mgr.	A. Kretlow	L. Cattell	H. M. Varian	F.D. 626' F.D. 162,	18' (7200 T) 18' (1600 T)
Hacker Boat Co. 323 Crane Av., Detroit	Y.		John L. Hacker	H. F. Palmer	John Tesner			
Heckler Bros. Sault Ste. Marie	R.G.		Gen. Mgr.: J. H. Heckler				M.R. 1000 T. 190x50	9-17
Imperial Shipbuilding Co. Detroit	B.	M. C. G. T.		B. J. Oades				
Lanzell Shipyard St. Clair	W. R.G.	D. B. C. & W.	Gen. Mgr.: Arthur Lanzell				None	

*Ashtabula Yard Also—Same Officials—D.D. 600 Ft. long - 16 Ft. over sill.

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S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.
M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock. R.G.—Repair Steel Ships. R.W.—Repair Wood Ships.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
McLouth, Sidney C. Marine City	R.G.		No Report Furnished	G. J. Newcomb	J. G. Purdy	J. G. Purdy	Screw Dock	5
Purdy Boat Co. Trenton	Y.		E. E. Purdy	Wm. C. Coughlin	Geo. C. Mason	H. M. Cameron	None	
Saginaw Shipbuilding Co. Saginaw	S.	P. M.	Chas. W. Stiver					
MINNESOTA McDougall-Duluth Shipbldg. Co. Riverside Sta., Duluth	S.	N. P.	Julius H. Barnes	F. J. Scanlon	I. Carlsten	Mr. Tweedy		
Marine Iron & Shipbuilding Co. Duluth	R.G.	N. W. N. P.	M. Christiansen	L. R. Nelson	Toby Cahill	John Abernethy	F.D. 350	25'
Twin City Forge & Fdry. Co. Stillwater	B.		No Report Furnished					
MISSISSIPPI Dantzler Shipbuilding Co. Moss Point	W.		L. N. Dantzler					
Dierks-Blodgett Shipbuilding Co. Pascagoula	W.		Gen. Mgr.: D. V. Dierks					
International Shipbuilding Co. Pascagoula	W.	L. & N.	Riccardo Gualino	A. Stone	Ivo Schiavon	Ivo Schiavon	None	
Mississippi Shipbuilding Corp. Biloxi	W.		W. Dyer					
MISSOURI Rohan Boat, Boiler & Tank Builder, Philip A. St. Louis	W. S.	S.	No Report Furnished					
St. Louis Boat & Engr. Co. St. Louis	B. T.		E. A. Faust					
NEW HAMPSHIRE Atlantic Corp., The Portsmouth	B. & M.	S.	Arthur S. Sharp	I. A. Newick	Gen. Mgr.: H. C. Raynes	Gen. Mgr.: H. C. Raynes	None	
NEW JERSEY American Shipyard Co. Camden	R.G.	Penn. P. & R. Penn.	Nathan Hayward	H. B. Mortimore			M.R. 2000 200'x60'	12-17
Bethlehem Shipbldg. Corp., Ltd. Moore Plant, Elizabeth	S. R.S.		For officials see Bethlehem Shipbuilding Corp., Bethlehem, Pa.					
Delaware Shipbldg. & Repair Co. Camden	B. R.G.	Penn. P. & R.	J. J. Turney, Philadelphia					

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.
M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Elco Works, The Bayonne	Y.	C. R. R.	H. R. Carse, 11 Pine St., N. Y.	E. B. Conrad, 111 Pine St., N. Y.	I. Chase	I. Chase	2 M.R.	
Federal Shipbuilding Co. Add. P. O. Box 618, Newark	S.	P. R. R.	V.-P. & Gen. Mgr.:	J. L. Hastings	J. C. Craven	W. W. Smith	F.D. 12000 425'x125'	26
Fletcher Co., W. & A. Hoboken	R.S.	C. R. R.	L. H. Korndorff	Samuel Newton	James A. Capstaff	Harry Avery	F.D. 8500 440' long	26
Lord Dry Dock Co., The Weehawken	R.G.	W. S.	F. W. Lord, 105 W. 40th St., New York	D. L. Richardson	W. L. Bunker	W. L. Bunker	F.D. 1000 F.D. 4000 2 F.D. 1200 2 F.D. 1000	22 20 14 & 12 14
Mathis Yacht Bldg. Co. Camden	Y.	Penn.		L. F. Kuester			None	
Morgan Engineering Co. Jersey City	R.G.	P. & R. Penn.	T. P. Connolly	Wm. Dillon	R. A. McCabe	R. A. McCabe		
New Jersey D. D. & Trans Co. Elizabethport	S. & W. R.G.	C. R. R.	Fred B. Sullivan	H. M. Sullivan	B. Stokeni	E. W. Marsh	M.R. 2500 T. M.R. 540 T.	10-15 12
New York Shipbuilding Corp. Camden	S.	Penn.	Marvin A. Nee- land	L. G. Buckwalter	Gen. Mgr.: G. M. Andrews			
Noecker & Ake Camden	R. Small	P. & R. Penn.		John Ake			F.D. 2500 F.D. 1500 F.D. 750 F.D. 500 F.D. 10000 Under Constr.	240'x80' 213'x66' 138'x58' 120'x51'
Perth Amboy D. D. Co. Perth Amboy	S. R.G.	P. & R. Penn.	W. P. Runyon	Axel Olsen	W. H. Black	D. C. Preacher	None	
Pusey & Jones Co. Wilmington	S.		No Report Furnished					
Submarine Boat Corp. Port Newark	S.	Penn.	Henry R. Carse	J. P. Nicholas	J. J. Scollan	G. A. Anthony		
Swenson, John Ft. Warren St., Jersey City	R.W.	C. R. R. Penn.					F.D. 1000 F.D. 400 9 F.D. to 16000 T.	12 to 21
Tietjen & Lang D. D. Co. (Of Todd Shipyards Corp.) Hoboken	R.G.	W. S. Erie	G. G. Raymond	David Courtney				
Union D. D. & Repair Co. Weehawken	W. & S. R.G.	W. S.	John Walsh, Jr.	H. W. Sullivan			4 F.D. from 500 to 2000 T. 5 F.D. from 500 to 1200 T.	
Vulcan Iron Works, Inc. Jersey City	R.G.	Penn.	A. J. Grymes	T. L. Trotter		R. R. Roane		
Weehawken Dry Dock Co. Weehawken	S.	W. S.	No Report Furnished					
NEW YORK Albany Boat Corp. Watervliet	Motor Boats	N. Y. C. D. & H.	L. L. Tripp	G. Aikin	G. E. Buchont		M.R. 60'	

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Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill	
American Shipbuilding Co., The Buffalo	S. R.G.	B. C.	M. E. Farr, Cleveland, O.	W. H. Gerhauser, Cleveland, O.	A. W. Cross, Cleveland, O.	J. C. Workman, Cleveland, O.	D.D. 470'x62' D.D. 630'x81' D.D. 401'x47'	13½ 14½ 14½	
Astoria Boat Wks. & Mar. Eq. Co. Long Island City	Y.	L. I. R. R.		Gen. Mgr.: F. W. Martin					
Baker, Fillmore A. Patchogue, L. I.	Launch	L. I. R. R.	See American Shipbuilding Co., Buffalo, N. Y.						
Buffalo D. D. Co. Buffalo									
Buffalo Marine Constr. Corp. Buffalo	R.G.	N. Y. C.		Gen. Mgr.: F. Allen					
Bushey & Sons, Inc., Ira Ft. Court St., Brooklyn	S. R.G.		Ira S. Bushey	J. W. Feerick			F.D. 7500 T. F.D. 1500 T.	20 14	
Carteret Ferry Corp. Linoleumville, S. I.	W. Sail		Gen. Mgr.: Capt. W. O. Sawyer	Shipwright & Joiner Work Frank Reimers	Cattle Fittings				
Chelsea Ship Repair Co. 440 W. 23d St., New York			Charles Cooper						
Clinton Dry Docks, Inc. (Of Todd Shipyards Corp.) Clinton St., Brooklyn	R.G.		Geo. J. Robinson		Ernest Fils	J. S. Milne	F.D. 9000 T. 428'x114'	25	
Consolidated Shipbuilding Corp. Morris Heights, New York	Y. T. B.	N. Y. C.	John J. Amory	Wm. Rayner	H. W. Patterson	H. E. Fromme	3 M.R. to 200'		
Cornell Steamboat Co. Kingston		U. & D.	F. Coykendall	Maintain yard for repair to own vessels					
Crane Sons Co., Theo. A. Ft. Columbia St., Brooklyn	R.G.		See yard at Solomon, Md.						
Davis & Son, Inc., M. M. 366 Fifth Av., New York			Wallace Downey	R. Bowman	R. Campbell	Mr. Keency			
Downey Shipbuilding Corp. Arlington, S. I.	S.								
Englis, Inc., C. M. Brooklyn	Y. R.W.	L. I. R. R.	C. M. Englis, 1 Madison Av., New York	Gen. Mgr.: C. M. Englis					
Ferguson Steel & Iron Co. Buffalo	T. B.	N. Y. C.		M. Arnold					
Fyfe's Shipyard (Greenwood, L. I.	Y.		Owner & Gen. Mgr.: James Fyfe				3 M.R. 300 T.	12	
Glen Cove Shipyard Glen Cove, L. I.	Y. T. B.	L. I. R. R.	R. E. Downing	R. E. Downing	H. Bedell	S. A. Barratt	M.R. 1000 T. 330'	10	

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M.R.—Marine Railway. F.D.—Floating D.D. R.C.—General Repairs. D.D.—Dry Dock.									
Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill	
Gokey & Co. Eric Basin, Brooklyn	R.G.	L. I. R. R.	T. W. Brigham	C. P. Brigham	James W. Hussey	James W. Hussey	M.R. 3000 M.R. 1200 M.R. 800	20 18 12	
Greenport Basin & Constr. Co. Greenport, L. I.	S. to 200 ft. R.G.	L. I. R. R.	R. D. Mason	H. R. Metcalf	James W. Hussey	R. D. Mason	M.R. 1200 T. M.R. 800 M.R. 200 M.R. 30	5 10 8 6	
Greenport Ship Co. Greenport, L. I.	R.G.	L. I. R. R.	Gen. Mgr.: A. S. Haff	H. R. Metcalf	James W. Hussey	R. D. Mason	M.R. 500 M.R. 200 M.R. 75	13 10 8	
Haff's Marine Railways Babylon, L. I.	Boats to 100 ft.	L. I. R. R.	No Report Furnished				3 M.R. 100 T. 75'	6	
Haller-Davis-Flood Co., Inc. Hudson Falls	B.								
Harrison Shipyards, Inc. Off., 141 Broadway, New York	W. & C.								
Hiltebrant D. D. Co., C. So. Roundont	T. B.	W. S.	John Hiltebrant	John Hiltebrant			2 F.D. to 1200 T.	16	
Hudson Shipbuilding Corp. Tarrytown	W. B.	N. Y. C.	Theo. N. Litz	Theo. N. Litz			No Yard		
Hullfin Boat Co., Inc. 27 Cedar St., New York			Samuel Golden	Specializes Self-propelled Car Floats		Licenses to Shipbuilders			
Hutchinson Bros. Alexandria Bay	Y. to 125 ft.						M.R. 50 T. 100'x30'	6½	
Jacob, Robert City Island	Y. T. B.	N. Y., N. H. & H.	Robert Jacob	Charles Pascuiti	Robert Jacob	Robert Jacob	M.R. 1100	20	
Jacobsen & Petersen Brooklyn									
Johnson Shipyard Corp. Mariner's Harbor, S. I.	W. R.G.	B. & O.	Robert Magruder	H. Magruder	T. S. Marvel	D. MacVickar	D. D. 4000	24	
Kingston Shipbuilding Corp. Kingston	W.	W. S.	J. D. Schoonmaker	W. P. Snyder	Gen. Mgr.: W. M. Mills	W. M. Mills	M.R. 1500	14	
Kyle & Purdy, Inc. City Island	Y. T. B.	N. Y., N. H. & H.	Thos. A. Kyle	Thos. W. Kane	J. R. Williams	J. McClymount	2 M.R. 500 M.R. 100	18 & 16 9	
Lenahan Co., R. Kingston		W. S. M. & D.	R. J. Dwyer	J. F. Dwyer	C. Scharschu	J. McCausland	None	20	
Liberty D. D. & Repair Co. Brooklyn & Jersey City	T. B.		Anthony O'Boyle, 1 B'way, N. Y.	Mgr.: J. F. O'Boyle			F.D. 4000 F.D. 2000 F.D. 1000		
L. I. Mach. & Mar. Constr. Co. Long Island City	Harbor Vessels	L. I. R. R.	J. R. Russell	F. Munder	L. Keller	J. Whittik	None		
Lord D. D. Corp. 105 W. 40th St., New York			See yard at Weehawken, N. J.	Also 1 M.R. 3500 T. at Providence, R. I.					

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Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
McWilliams Inc., Frank Staten Island	T. B.		Frank McWilliams	A. F. McWilliams			4 M.R. 600 to 2000 T.	18
Merchant Shipbuilding Co. 120 Broadway, New York			See yard at Chester, Pa.					
Morris Machine Works Baldwinsville	Dredge Mchy. R.G.	N. Y. C.	Windsor Morris	J. L. Lonergan	L. La Combe	V.-P. & Gen. Mgr.: Carl L. Lager	D.D. 15000	22
Morse D. D. & Repair Co. Ft. 56th St., Brooklyn	R.G.	Penn.	E. P. Morse & Gen. Mgr.	William Daly		J. J. Byrne	D.D. 30000	30
National D. D. & Repair Co. West New Brighton	R.G.	B. & O.	E. P. Morse, Jr.	John L. Powell	Rufus Murray	Rufus Murray	M.R. 2500 T. M.R. 1500 T. M.R. 1000 T.	20 14 12
Nevins Inc., Henry B. City Island	Y.	N. Y., N. H. & H.	Henry B. Nevins	John J. Byrne	Wm. J. Wade	Wm. J. Wade	M.R. 100 T. M.R. 75 T. M.R. 50 T.	12 10 10
New Baltimore Shipbldg. & Rep. Co. New Baltimore	W. R.W.	W. S.	Wm. J. Wade	Wm. J. Wade	W. D. Allen	W. D. Allen	M.R. 400 T. 150'x34'	8
N. Y. Harbor D. D. Corp. Port Jefferson, L. I.	W. & S. to 5000 T. R.G.	L. I. R. R.	Charles E. Fraser	L. Binger			M.R. 1500 T. M.R. 500 T.	
N. Y. Harbor D. D. Corp. Rosbank, S. I.		B. & O.	Charles E. Fraser	J. E. Hauley	H. L. Burgess	A. Whitlet	F.D. 12000	Under Constr.
N. Y. Yacht, Launch & Engine Co. Morris Heights	Y.	N. Y. C.	J. A. Nickelson	J. F. Masterson	J. E. Schlegel	J. E. Schlegel	F.D. 10000 M.R. 80'x14'	7 (60 T.)
Newburgh Shipyards, Inc. Newburgh	S.	N. Y. C.	G. C. Desmond	Jos. Lahey	S. Crosby	Mr. Robertson	M.R. 60'x14'	6 (40 T.)
Peterson, Julius Nyack	Y. to 100 ft. R.G.	Erie	Proprietor: Julius Petersen				6 M.R. to 100' cap.	
Ramberg D. D. & Repair Co. Ft. Dikeman St., Brooklyn	B.	L. I. R. R.						
Rice & Sons, Jacob Rondout								
Richardson Boat Co. 370 Sweeney St., Tonawanda	Y.	N. Y. C. Erie	Proprietor: G. R. Richardson				M.R. 15 T.	4
Robins D. D. & Repair Co. (Of Todd Shipyard Corp.) Brooklyn	R.G.		V.-P. & Gen. Mgr.: Geo. J. Robinson son	George Gilman, 15 Whitehall St., New York			4 F.D. to 20000 T.	
Rochester Boat Works, Inc. Charlotte Sta., Rochester	W. Y.	N. Y. C.	V. E. Lacy	B. C. Meier	H. Gardner	V. E. Lacy	M.R. 50 T.	
St. Lawrence Marine Ry. Co. Ogdensburg	R.G.	N. Y. C.	F. A. Augsburg	J. G. Westbrook	Arthur Woods	J. G. Westbrook	M.R. 3000 T. 265' long	
Shewan & Sons, Inc., James Ft. 27th St., Brooklyn	R.G.	Bush Term.	James Shewan	Address Corp.	Address Corp.	Address Corp.	10 F.D. 1000 to 12000 T.	

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M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Sound Machine Shop, Inc. Mamaroneck	Y. & T. to 75'		K. M. Goldsmith	K. M. Goldsmith	John W. Chapman	Roy Zubler	M.R. 75'	12½
Standard Shipbuilding Corp. Mariners Harbor, S. I.	S. R.G.	C. N. J. L. C. L.	Jose Marimon	Jaime Cortada	Charles Burton	D. L. Moffat	M.R. 3200 T. 320'x80'	20
Staten Island Shipbuilding Co. Staten Island	S. R.G.	B. & O.	W. J. Davidson	R. C. Miller	J. E. Bowers	A. C. Leaverton	6 D.D. to Max. Cap. 10000 T.	
Submarine Boat Corp. 11 Pine St., New York			See Yard at Port Newark, N. J.					
Tank Shipbuilding Corp. Newburgh	T. B.	Erie W. S.	R. E. Gaut	R. M. Rownd	O. A. Eldrup	J. E. Kilpatrick	M.R. 500 T. 180'x25'	10
Tebo Yacht Basin Co. (Of Todd Shipyards Corp.) Brooklyn	R.G.		V.-P. & Gen. Mgr.: James S. Milne	George Gilman, 15 Whitehall St., New York			2 F.D. to 10000 T.	
Texas Steamship Co. 17 Battery Pl., New York			See Yard at Bath, Me.					
Todd Shipyards Corp. Off., 15 Whitehall St., New York	R.G.		William H. Todd	George Gilman	Chief Engineer: James S. Milne	See Plants Clinton (Bklyn.), Tebo (Bklyn.), Tietjen & Lang (Hoboken), Todd (Seattle), Todd (Ta- coma)		Robins
Tregarthen & Sons Co., Inc., Jas. Ft. E. 7th St., New York	R.G.		Jas. Tregarthen	Gen. Mgr.: Jas. A. Tregarthen		W. H. Tregarthen	F.D. 3000 F.D. 2000 F.D. 1000 None	
W. F. & R. Boat Builders, Inc. Kingston	B.	U. & D.	Thos. Feeney	Thos. Feeney & Gen. Mgr.				
Watervliet D. D. & Shipyards Watervliet			Specializes in Small Dry Docks, Barges & Lighters					
Wheeler, Howard E. 2280 Cropsey Av., Brooklyn	W. to 300' R.G.		Proprietor: Howard E. Wheeler					
NORTH CAROLINA								
Bell-Wallace Co. Morehead City	W.	N. S.	Chas. S. Wallace	Chas. S. Wallace	John F. Bell	John F. Bell	Under Constr.	
Elizabeth City Iron Wks. & Sup. Co. Elizabeth City	R.G.	N. S.	Brad Sanders	H. W. Sanders				
Elizabeth City Shipyards Co. Elizabeth City	W. & S. R.G.	N. S.	R. B. Cotter	R. B. Cotter			M.R. 210' M.R. 110'	
George A. Fuller Co. Wilmington	S. R.S.	A. C. L. S. A. L.	Lorenzo C. Dilks	Supply Mgr.: E. G. Glass	Technical Engr.: Jas. R. Preston	James R. Preston	None	

SHIPBUILDING COMPANIES OF THE UNITED STATES

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
S —Steel Ships. C —Concrete Ships. T —Tugs & Launches. D —Dredges & Derricks. W —Wood Ships. B —Barges, Lighters, etc. Y —Yachts. R.S. —Repair Steel Ships. R.W. —Repair Wood Ships. M.R. —Machine Railway. F.D. —Floating D.D. R.G. —General Repairs. D.D. —Dry Dock.								
Hamme Marine Ry. Co. Wilmington	W.	A. C. L.	Fred Hamme	Fred Hamme			M.R. 500	Bldg.
Meadow, J. A. New Bern	T. R.W.	S. A. L. A. C. L.	J. A. Meadow	Wade Meadow			M.R. 100 M.R.	10
New Bern Marine Ry. New Bern	River Craft	A. C. L.	Owner: J. Vernon Blades	J. Vernon Blades			M.R. 100'x25'	8
Willis Marine Railways Morehead City	W. R.W.	N. S.	O. C. Willis	Gen. Mgr.: W. Holt Bell			M.R. 200 T.	10
Wilmington Marine Ry. Co. Wilmington	R.G.	A. C. L. S. A. L.	Ed. Bailey	T. D. Lane E. Z. King	Ed. Hall		M.R. 1000 T.	
Wilmington Iron Works Wilmington	R.G.	S. A. L.					M.R.	
OHIO American Shipbuilding Co. Cleveland Yard	S. R.G.	Erie	M. E. Farr	W. H. Gerhauser	A. W. Cross	J. C. Workman	D.D. 547'x65' D.D. 430'x50' D.D. 360'x50'	17 16 12-34"
American Shipbuilding Co. Loraine Yard	R.G.	Nickel Plate	M. E. Farr, Cleveland	W. H. Gerhauser, Cleveland	A. W. Cross, Cleveland	J. C. Workman, Cleveland	D.D. 586'x66' D.D. 736'x80'	14'-6" 14'-6"
Barnes Co., The Charles Cincinnati	River Craft	Penn.	Chas. Barnes	A. W. Barnes	Geo. Barnes	Geo. Barnes		
Cuthbert Co., A. G. Sandusky	Y. T.		A. G. Cuthbert					
Lake & Ocean Shipbuilding Co. Cleveland	W.	Erie	James Craig					
Great Lakes Towing Co. Cleveland	S. T.	Erie	H. E. Gilpin	Secy.: M. H. Wardwell	V.-Pres.: Thos. Johnson	Thos. Johnson	M.R. for Tugs	
Interlake Engineering Co. Cleveland	B. B.	Erie	No Report Furnished					
Lake Erie Drydock & Mill Co. Sandusky	T. & B. R.G.	B. & O. Penn.	Chas. F. Mischler	Jos. T. Sloat			M.R. 400 T. 135' long	9'
Sears, James Toledo	R.G.	W. & L. E.	James Sears	James Sears	James Sears	James Sears	M.R. 300 T. 103'x30'	10½
Toledo Shipbuilding Co., The Toledo	S. R.G.	W. & L. E.	H. S. Wilkinson	H. M. Ives	J. L. Goble	J. O. Crafts	D.D. 690'x96' D.D. 569'x80'	14'-5" 13'
OREGON Astoria Marine Iron Works Astoria	D.	S. P. & S.	W. A. Viggers	J. R. McKinney	Thos. Bilyeu	Thos. Bilyeu	M.R. Under Constr.	

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Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.
McEachern Shipbuilding Co. Astoria	W.		No Report Furnished	Gen. Mgr.: R. Banks			
Kruse & Banks Portland	W. & D.		No Report Furnished				
Marine Repair & Constr. Co. Portland	B.		Gen. Mgr.: W. R. Bowles	W. C. Smith	J. F. Dick	W. C. Shaw	
Northwest Bridge & Iron Co. Portland	S.	S. P. O. & W.		H. F. Gallimore			
Pacific Boat & Iron Works Portland				H. H. Fisher			
Peninsula Shipbuilding Co. Portland	W.			P. E. Horslin	Albert E. Dyer	Jas. Noyes	M.R. 230'x42' 16 (1400 T.)
Portland Shipbuilding Co. Portland	S. & W.	S. P. O. & W.	E. R. Norton		W. R. Hewitt	W. R. Hewitt	M.R. 110'x28' 14 (250 T.)
St. Helens Shipbuilding Co. St. Helens	W.	S. P. & S.	Chas. R. McCormick	A. F. Barnett			
PENNSYLVANIA							
American Bridge Co. Ambridge	River Craft	Penn.	August Ziesing, Pittsburgh	W. G. A. Millar Pittsburgh		J. L. Taylor, Pittsburgh	
American International S. B. Corp. Hog Island	S.	P. R. R. P. & R.	M. C. Brush	T. J. Forde	P. Nicholson	Offered for Sale by Shipping Bd.	
Bethlehem Shipbldg. Corp., Ltd. Office, Bethlehem, Pa.			E. G. Grace	W. M. Tobias	Operating V.-P.: J. W. Powell	See Plants at Quincy, Mass., Elizabeth, N. J., Wilmington, Del., Sparrows Pt., Md., & San Francisco.	
Cramp & Sons Ship & Eng. Bldg. Co., The Wm. Philadelphia	S.	Penn. P. & R.	J. H. Mull	E. C. Geehr	W. A. Dobson	John F. Metten	D.D. 433'x69' M.R. 1000 T. M.R. 3000 T.
Dempsey & Sons Camden	S. to 200 ft.		Gen. Off. at Bullitt Bldg., Philadelphia				240'x35' 270'x49'
Dravo Contracting Co. Neville Id., Coraopolis	W.	P. C. & G.	F. R. Dravo, Pittsburgh	A. Davia, Pittsburgh	V. B. Edwards	H. P. Smith	D.D. of Wood
Dravoburg Dock & Constr. Co. Dravoburg	B. & D. B.	M. R. R.	J. H. Hillman, Jr.	W. W. Gillett	T. Achinclase	T. Achinclase	
Eichleay, Jr. Co., John Hays Station	R.W. River Craft	Penn.	John Eichleay, Jr., Pittsburgh	H. O. Eichleay		F. E. Alexander	
Elizabeth Marine Ways 8 Market St., Pittsburgh	River Craft	P. L. & E.	W. K. Field	F. E. Now	Gen. Mgr.: C. C. Bunton	C. C. Bunton	3 F. D. 250'x100' 1 M. R.

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.
M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Kensington Shipyard Philadelphia	R.G.		See Cramp & Sons	Ship & Eng. Bldg.	Co. for Data			
Merchants Shipbuilding Corp. Chester	S.	Penn. P. & R.	R. H. M. Robinson Owns and Operates	Griffith Coit	C. A. Ward, Jr.	J. E. P. Grant	None	
Pittsburgh Coal Co. Pittsburgh	Y.		Proprietor: Harry Rasmussen	Elizabeth Marine Ways			M.R. 80'x22' 4 M.R. Small	10
Rasmussen, Harry Essington	River Craft							
Rees & Sons, James Pittsburgh	S.	Penn. P. & R.	John G. Pew	C. E. Hendrixson	V.-Pres.: J. K. Graham Manager: James Hoffman	V.-Pres.: Robt. Haig James Hoffman	F.D. 550'	Bldg.
Sun Shipbuilding Co. Chester	Y.	Penn. B. & O.	Harry Reeves	Harry Reeves				
Yacht Repair & Storage Co. Essington								
RHODE ISLAND								
Herreshoff Mfg. Co., Inc. Bristol	Y.		N. G. Herreshoff		A. L. Swasey			
Lord Dry Dock Corp. Providence	R.G.	N. Y., N. H. & H.	F. W. Lord	D. L. Richardson	Gen. Mgr.: W. L. Bunker	W. L. Bunker	M.R. 3500 T. 340'x66'	18
Narragansett Shipbuilding Co. Tiverton	S.	N. Y., N. H. & H.	H. C. Wood	H. C. Wood	W. R. Pitts	W. H. Gray	M.R. 800 T. 160'x38'	14
Nock, F. S. East Greenwich	R.G.	N. Y., N. H. & H.	Owner: F. S. Nock				M.R. 250 T. 90' Cap.	16
Providence Emerg. Corp. Providence	T.	N. Y., N. H. & H.	No Report Furnished					
SOUTH CAROLINA								
American Shipbldg. & Dock Corp. Beaufort	C.	C. & W. S.	R. C. Horne, Jr.	R. C. Horne, Jr.	Gen. Supt.: G. S. Horne	G. S. Horne	None	
Charleston D. D. & Machine Co. Charleston	R.G.	So. Ry. A. C. L.	W. R. Bonsal	Charles R. Valk			F.D. 8000 M.R. 1500 M.R. 500	22 15 10
TENNESSEE								
Nashville Bridge Co. Nashville	S. B.	N.C. & St. L. L. & N.	Art J. Dyer	R. M. Tigert	Frances Short	L. C. Anderson	M.R. 2500	
TEXAS								
Beaumont Shipbldg. & D. D. Co. Beaumont	T. & B. R.G.	S. P. S. F.	J. W. Link	T. J. Fontana	Gen. Supt.: R. F. Taylor	E. B. Van De Greyn	M.R. 2600 268' Long	18

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derricks. W.—Wood Ships. B.—Barges, Lighters, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.
M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Direct Navigation Co., The Houston	G.R. to 600 T.	S. P.	W. R. Scott	N. P. Randolph, New Orleans	N. W. Washburn	N. W. Washburn	M.R. 250'x50'	14
Galveston D. D. & Constr. Co. Galveston	R.G.	S. P.	J. H. Langben	Manager; H. A. Treat	Gen. Supt.: W. P. Cunningham		F.D. 10000 M.R. 1000	22 13
Harbor Island Yard Aransas Pass	C.	S. F.	Jas. McDonald	R. P. Durham	L. H. Stanley	A. E. Putnam		
Heldenfels Bros. Shipyard Rockport	W.	S. A. & A. P.	Manager.: F. W. Heldenfels	F. W. Heldenfels	G. E. Roberts	C. E. Lindeman	M.R. 400 T. 80'x26'	9
Lone Star Shipbuilding Co. Beaumont	B. & T. W.	K. C. S. S. P.	Geo. B. Leighton, 111 Broadway, New York					
National Shipbuilding Co. Orange	S. & W.	S. P.	A. A. Daugherty, New York					
Seaboard Trans. & Shipping Co. Channel Dyke	B. R.G.		T. J. Anderson, Galveston	J. A. Greenwalt, Galveston	Gen. Mgr.: H. J. Schutte	Jas. Gleave		
Southern D. D. & S. B. Co. Orange	S. & W.	S. P.	S. M. White					
		G. C. L.						
VIRGINIA Hampton Shipbuilding & Marine Ry. Corp. Hampton			No Report Furnished					
Mathews Marine Railway Williams Wharf	R.W. to 100 T.	Steamer Norfolk	Gen. Mgr.: Milton Murray	Owned by B. Wil- liams & Co.			M.R. 100 T. 100'x24'	9
Newport News Shipbldg. & D. D. Co. Newport News	S. R.G.	C. & O.	H. L. Ferguson	James Plummer, 233 Broadway, New York	Wm. Gatewood	C. F. Bailey	D.D. 800' D.D. 600' D.D. 550'	30 25 24
Norfolk Marine Ry. Co., Inc. Norfolk	R.G.	N. S.	Geo. W. Roper	C. G. Lawrence	M. N. Lawrence		M.R. 1000 T. M.R. 750 T.	225' Long 200' Long
Old Dominion Marine Ry. Corp. Norfolk	R.G.	N. S.	Alex Warren	S. T. Weil	R. A. Hutchins, Jr.	Gen. Mgr.: W. G. Larmour	M.R. 2000 T. M.R. 1000 T.	19 16
Sharpley Marine Rys., The Franklin City	W.	P. B. & W.	Gen. Mgr.: J. T. Sharpley	J. T. Sharpley			2 M.R. to 10 T.	3½
Southern Shipyard Corp. Newport News	R.G.	C. & O.	O. A. Bloxom	J. W. Cline	L. W. Bloxom F. D. Watts	F. D. Watts	M.R. 3000 T. 288'x60'	12-17
Virginia Shipbuilding Corp. Alexandria	S. to 20000 T.	So. Ry.	E. A. Morse	H. C. Russell	G. M. Lagergren	G. M. Lagergren	None	
Warwick Machine Co. Newport News	R.G.	C. & O.	Geo. T. Hardy	V.-Pres.: F. B. Hooper				
Williams & Co., B. Williams Wharf			Owens Mathews Marine Ry.					

SHIPBUILDING COMPANIES OF THE UNITED STATES

S.—Steel Ships. C.—Concrete Ships. T.—Tugs & Launches. D.—Dredges & Derivatives. W.—Wood Ships. R.—Repairs, etc. Y.—Yachts. R.S.—Repair Steel Ships. R.W.—Repair Wood Ships.	Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
	York River Shipbuilding Corp. West Point	W.	So. Ry.	P. L. Reed	A. L. Vannam			D.D. 10000 T.	
	WASHINGTON Ames Shipbldg. & Drydock Co. Seattle	S.	N. P.	Edgar Ames				M.R. 600 T. M.R. 400 T. M.R. 80'x30'	10 11
	Ballard Marine Ry. Co., Inc. Seattle	R.G.	G. N.	W. G. Fryberg	T. W. Smith	Chas. Campbell	J. B. Campbell	None	
	Campbell & Bros., Robt. Seattle	R.G.	G. N.	Robt. Campbell	J. B. Campbell	A. Nation	C. O. Bretherick		
	Duthie & Co., J. F. Seattle	S. R.G.	G. N. N. P. U. P.	J. F. Duthie	E. C. Gaumnitz				
	Elliott Bay Shipbuilding Co. Seattle	R.G.	N. P.	C. Morrow	N. E. Morrow	C. B. Adams	J. C. Dyer	M.R. 600 T. 100'x40'	16-20
	Endresen Spar & Timber Co. Aberdeen	R.W.		L. C. Endresen	E. N. Endresen			M.R. Small	
	Fishing Vessel Owners Marine Ways, Inc. Seattle	W.	N. P.	G. Engdahl	M. Guldford			M.R. 300 T. M.R. 200 T. M.R. 200 T.	
	Johnson, J. C. Port Blakely	W. R.W.	None	J. C. Johnson	H. J. Yankowsky				
	James Co., H. R. Seattle	R.G.	N. P.	H. R. James	F. J. Morrill		F. J. Mori	M.R. 1300 T.	12
	Hartzell, Inc., D. W. Eagle Harbor	R.G.			P. G. Pollard, Seattle			M.R. 500 T.	
	King & Winge Shipbldg. Co. Seattle	R.G.		Gen. Mgr.: T. J. King	O. Ramm			M.R. 1000	
	McAteer Shipbuilding Co. Seattle								
	Marine Iron Works Seattle	R.G.	N. P.	P. C. Peterson	R. Floy		P. C. Peterson	4 M.R.	14
	Maritime Boat & Engine Wks. Seattle	T. & B. R.G.	N. P.	L. T. Sandvik	Geo. W. Rohrig	Gen. Mgr.: C. B. Winge	C. B. Winge	M.R. 500 T. 110'	
	National Steel Construction Co. Seattle	S.	O. & W.	John Wilson	S. G. Climenson	Gen. Mgr.: W. H. Griffin			
	Norway-Pacific Const. & D. D. Co. Everett	S.	N. P. G. N.	M. G. Thomle	Gen. Mgr.: R. Elwood Ellis	O. Hetlesater		F.D. 30' Draft	Under Constr. 14
	Price Construction Co., J. H. Houghton	W.	N. P.	J. H. Price	C. B. Mann	R. S. Stuart F. Rotch, Jr.	J. W. Foreman	M.R. 2000 T. 200'x56'	
	Sloan Shipyards Corp. Olympia or Anacortes	R.W.							

SHIPBUILDING COMPANIES OF THE UNITED STATES

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M.R.—Marine Railway. F.D.—Floating D.D.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Standifer Construction Corp., G. M. Vancouver	S.	N. P.	G. M. Standifer	Horace Luckett	J. McCall	C. J. Snow	None	
Todd Dry Dock & Constr. Corp. (Of Todd Shipyards Corp.) Tacoma	S. R.S.	G. N. N. P.	C. W. Wiley	C. L. Bankson	S. A. Vincent W. C. Nickum	Jno. Gardner		
Todd Dry Docks, Inc. (Of Todd Shipyards Corp.) Seattle	R.G.	G. N. N. P.	C. W. Wiley & Gen. Mgr.	C. R. English			2 D.D. 12000 T. Each D.D. 4000 T.	
WEST VIRGINIA								
Kanawha Dock Co. Point Pleasant	River Craft	B. & O.	J. W. Hubbard	W. F. Smith	S. J. Struben	E. H. Holmes	Sectional F.D.	
Marietta Mfg. Co. Point Pleasant	River Craft	K. & M.	Walter A. Windsor	S. C. Wilhelm				
Point Pleasant Dry Dock Co. Point Pleasant	River Craft	B. & O.	J. W. Hubbard	W. F. Smith				
Ward Engineering Wks., The Charles Charleston	River Craft	K. & M.	Chas. E. Ward	Chas. E. Ward	Chas. E. Ward	A. H. Stork	D.D. 212'x56'	11
Wintus, H. A. Parkersburg	River Craft	B. & O.	Gen. Mgr.: H. A. Wintus	H. A. Wintus			F.D. 4 Sections	
WISCONSIN								
American Shipbuilding Co. Milwaukee	S. R.G.	None	M. E. Farr, Cleveland	W. H. Gerhauser, Cleveland	A. W. Cross, Cleveland	J. C. Workman, Cleveland	D.D. 311'x45' D.D. 445'x61'	12'-6" 14'-6"
American Shipbuilding Co. Superior	S. R.G.	Soo.	M. E. Farr, Cleveland	W. H. Gerhauser, Cleveland	A. W. Cross, Cleveland	J. C. Workman, Cleveland	D.D. 609'x66' D.D. 620'x66'	15'-6" 20'
Anchor Shipbuilding Co. Washburn	S.	C. N. W. N. P.	Wm. Gunn Smith	John L. Larsen	Albert Curr	Thos. W. Perry	None	
Burger Boat Co. Manitowoc	W. Small	C. N. W. Soo.	H. C. Burger	A. A. Hanson	George Burger	Walter Burger	None	
Fabricated Ship Corp. Milwaukee	S. Small		E. E. Baker					
Great Lakes Boat Bldg. Co. Milwaukee	Y.		H. R. Chadwick					
Leathem & Smith T. & W. Co. Sturgeon Bay	T. & B.	A. & W.	Leathem D. Smith	C. D. Brower, Jr.	Andrew Baresen	Ed. Weber	D.D. 248'x41'	12-14
Manitowoc Shipbuilding Corp. Manitowoc	S.	C. N. W. P. M.	C. C. West	H. A. Meyer	W. L. Wallace	A. P. Rankin	F.D. 360'x70' D.D. 330'x46'	12-13 11-12

SHIPBUILDING COMPANIES OF THE UNITED STATES

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M.R.—Marine Railway. F.D.—Floating D.D. R.G.—General Repairs. D.D.—Dry Dock.

Shipbuilding Plant and Location	Class Work	Railroad	President	Purchasing Officer	Chief of Hulls	Chief Engineer	Dry Docks, etc.	Water Over Sill
Newton Engineering Co. Milwaukee	River Craft Y.	C. N. W.	No Report F. W. Hermans	G. G. Roberts			M.R. 100'	
Racine Boat Co. Racine	River Craft R.G.	C. N. W. Soo.	Geo. D. Ryan	Wm. G. Ryan	Geo. D. Ryan	Wm. G. Ryan	4 M.R.	
Ryan & Son, Geo. D. Oshkosh		G. B. & W. A. & W.	Philip Binzel	L. Liebschen, Jr.	Wm. C. Conwell	Wm. C. Conwell	F.D. 1200 T. 225' Long	13
Sturgeon Bay Dry Dock Co. Sturgeon Bay			See American	Shipbuilding Co.,	Superior, Wis.			
Superior Shipbldg. Co. Superior	S.	Soo.	E. H. Whitney	M. W. Michie				
Whitney Bros. Co. Superior	S.	G. B. & W.	Chairman: Louis Dalmas	J. W. Barber	Under Construc- tion			
Wisconsin Shipbldg. & Nav. Corp. Kewaunee								

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Acme S. S. Corp. 11 Broadway, New York	R. E. Miller				Owner	2,615
Acosta & Co., J. D. M. de 60 Wall St., New York					S.	2,451
Aiken Tow Boat & Barge Co. Pensacola, Fla.	I. H. Aiken		J. J. Bowes, Jr.		T.F.W.	5,982
Alabama Coal Trans. Co. Clio and Magnolia Sts., New Orleans					B.F.	1,223
Alaska Codfish Co. 10 Main St., San Francisco					C.	514
Alaska Pacific Nav. Co. Portland, Ore.					Gas.St.	1,616
Alaska Packers' Asso'n San Francisco					C.	39,628
Alaska-Portland Packers' Asso'n Portland, Ore.	Frank W. Warren	F. A. Daly			C.	2,550
Alaska Salmon Co. Fresno, Calif.					C.	1,317
Alaska S. S. Co. Pier 2, Seattle, Wash.	Stephen Birch 120 Broadway New York	W. B. Sprague	E. W. Raymond	R. R. Pierson	F. & P.	31,393
Albers Bros. Milling Co. San Francisco					C.	2,796
Allen & Robinson, Ltd. Honolulu					S. F.	1,877
Aluminum Line Harrison Bldg., Philadelphia	Manager: W. W. Eger				B. F.	10,500
American Balsa Co. 50 East 42d St., New York					C.	547
American Bauxite Co. Philadelphia					F.	3,212
American & Cuban S. S. Line 39 Cortlandt St., New York	A. R. Lewis	F. W. Osborn		F. W. Osborn	F.	14,000
American Cargo Trans. Co. 170 Broadway, New York					F.	654
American Finance & Commerce Co. San Francisco					F.	785
*American Fuel Oil & Trans. Co. 111 Broadway, New York	M. V. McQuigg			R. J. Minning	F.	75,000
American-Hawaiian S. S. Co. 39 Broadway, New York	G. S. Dearborn	A. N. Hargrave	Manager: J. D. Tomlinson		F. & P.	164,000
American Interlake Co. Duluth, Minn.					F.	4,708
*American Line 11 Broadway, New York	See I. M. M.				F. & P.	
*American Metal Trans. Co., Inc. 61 Broadway, New York	William E. Brady	Thos. E. Brady	C. Herman Brandes	Thos. E. Brady	F.	96,000
American Navigation Co. 277 Broadway, New York					C.	1,191
American Ship & Com. Nav. Corp. 44 Beaver St., New York						8,286
American Ship & Commerce Corp. 39 Broadway, New York						
*American Shipping Corp. Jacksonville, Fla.	J. J. Logan	W. W. Helvenston	Fred Carnes	Halstead Roberts	F.	10,000
American Sugar Transit Corp. 117 Wall St., New York	Austin B. Carpenter				Tanker	2,951
American Transatlantic Co. 17 Battery Pl., New York					F.	1,691
American Trans. Co. 17 State St., New York	H. E. Jones	H. W. Bowen	G. Grieg	C. P. Meredith	F.	4,918
Andes Copper Mining Co. 42 Broadway, New York						1,186
Andrews, Nelson Redwood City, Cal.					Steamers	1,395
Apex Navigation Corp. 63 Wall St., New York					Schooners	4,074
Argonne S. S. Co. 17 Battery Pl., New York	James Donald	Walter J. Bowles	J. C. Collingwood	Alfred Cozens	F.	6,746
Armour Fertilizer Wks. Chicago					C.	2,650
Associated Oil Co. San Francisco	Paul Shoup	A. P. McKillop	O. Lundin		Oil in bulk	18,000

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Astmahco Nav. Co., Inc. 1031 Steinway Ave., L. I. C., N. Y.	Alex. S. Williams		E. B. Stockmann		C.	7,200
Atlantic & Caribbean Steam Nav. Co. 82 Wall St., New York	Fred C. Dallett	Frank Combs	Harry Stout	Capt. Thos. Furst	F. & P.	9,730
*Atlantic & Pacific S. S. Co. 10 Hanover Sq., New York	M. Bouvier	H. Noaks	D. Mathieson	Capt. A. C. Paulsen	F.	17,509
Atlantic Coast Co. 131 State St., Boston					Schooners.	21,762
Atlantic Coast Trans. Co. Penn Bldg., Philadelphia	F. R. Long	J. Morecraft, Jr.		H. P. Lewis	B. F.	20,000
Atlantic Fruit Co. 61 Broadway, New York	Norman A. Macleod	D. E. Bordner	John Hunter	Capt. Clark	F.	44,000
*Atlantic Gulf & Pacific S. S. Corp. 30 S. Calvert St., Baltimore	W. Bernard Duke	Treas.: W. B. W. Mann	Gen. Mgr.: C. A. Askew	A. R. Haag	F. & P.	91,000
Atlantic Gulf & West Indies S. S. Lines, Inc. 11 Broadway, New York	A. R. Nichol	Treas.: R. C. MacBain			Owners	20,897
Atlantic Refining Co., Inc. Philadelphia					F. C.	65,000
*Atlantic Transport Line 9 Broadway, New York	See I. M. M.					
Atlas Steamship Co. San Francisco	M. Thompson	F. Palacio	Gen. Mgr.: A. Humburg	A. Pollard	F.	2,800
Augusta-Savannah Nav. Co. Augusta, Ga.					River F.	567
Baltic S. S. Co. 233 Broadway, New York	Vice-Pres.: Genl. Hines	Mr. Dunning	Mr. Greiner	Maj. Stafford	F. & P.	9,896
Baltimore & Carolina S. S. Co. Amer. Bldg., Baltimore	M. L. Weems Williams	Henry Williams	J. P. Sherwood	J. E. Jones	F.	*3,990
*Baltimore-Oceanic S. S. Co. Munsey Bldg., Baltimore	C. D. Mallory	W. W. Sealy	S. Greenlee	F. A. Gower	F. & P.	50,000
*Baltimore Steamship Co., Inc. Amer. Bldg., Baltimore	Wm. H. Stayton	T. E. Carson	H. M. Power	A. B. Gillespie	F.	65,000
Baltimore Steam Packet Co. Baltimore, Md.						4,216
*Barber S. S. Lines, Inc. 17 Battery Pl., New York	E. J. Barber	R. S. Blydenburgh	S. P. Gledhill	Capt. J. W. Hartley	F.	Varies
Barry, Carlos New London, Conn.					S.	1,636
Battery S. S. Corp. 17 Battery Place, New York					Steamer	2,551
Baxter S. S. Co., H. X. Amer. Natl. Bk. Bldg., San Francisco	A. M. Baxter	A. M. Bexter	P. P. Sheridan	None	F.	1,294
Bee Line Trans. Co., Inc. (Lehigh Valley Coal Sales Co.) 90 West St., New York	G. N. Wilson	Treas.: W. J. Burton	Mgr.: D. R. Chase		T. B. F.	21,018
Bermudez Trans. Co. Philadelphia					F.	4,715
*Berwind White Coal Mine Co. 11 Broadway, New York					C. F.	Varies
Bianca Shipping Corp. Alaska Bldg., Seattle, Wash.	Mgrs.: Universal Shipping & Trading Co.				F.	200,000
Billings, Geo. E. San Francisco					Schooners	6,379
*Black Diamond S. S. Corp. 20 Broad St., New York	J. E. Dockendorff	Mr. Donohue	Mgr.: L. Richardson	Capt. E. P. Shevlin	F.	150,000
*Blake & Co., Inc., W. A. 33 S. Gay St., Baltimore	W. A. Blake	W. A. Willingham	John Dotten	Capt. E. Hedrick	F.	
*Blue Star Nav. Co. Philadelphia					F.	
Bluefields Fruit & S. S. Co. New Orleans, La.	G. A. Mahe	L. L. Adams	Richard McKinney	Edw. Macheca	F. & P.	6,500
Booth Fisheries Co., Inc. Seattle, Wash.					C.	8,709
Border Line Trans. Co. Seattle, Wash.	G. W. Ninemire	J. S. Elliott	Mgr.: J. S. Elliott	Agts.: Dodwell & Co., Ltd.	F.	2,654
Boston & Gloucester St. B. Co. 224 Atlantic Ave., Boston					F. & P.	567
Boston Molasses Co. 175 Milk St., Boston					C.	3,153
Boston Sand & Garvel Co. 88 Broad St., Boston	P. P. Bird	E. R. Lane			C.	567

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Bowers Southern Dredging Co. Galveston, Tex.					C.	661
Broad Transport Corp. 50 Broad St., New York					Owner	690
Brookings Commercial Co. Brookings, Ore.	A. R. Owen	F. C. Petty		B. S. Free	Lumber	1,865
Brooks-Scanlon Corp. Eastport, Fla.	Owen, Wis. M. J. Scanlon	W. J. Semitti		San Francisco Capt. W. J. Malone	Carriers F.	2,954
Brooks S. S. Corp. 25 Broad St., New York					F.	
Broughton & Wiggins Nav'g Co. Portland, Ore.	W. B. Wiggins	W. B. Wiggins			F.	1,057
Buehner Lbr. Co. Coos Bay, Ore.					C.	774
Bull S. S. Co., A. H. 17 Battery Pl., New York	Ernest M. Bull	Ralph M. Barton	John W. Graham	Capt. Hy. McDonald	F.	45,000
Bull Insular S. S. Co. Bull Insular Line	Ernest M. Bull	Ralph M. Barton	John W. Graham	Geo. S. Liesegang	F.	238,000
*Bull & Co., A. H. (Agents) 17 Battery Pl., New York						
Burton S. S. Co. Boston	Wm. H. Burton	Wm. H. Burton			F.	1,100
*Callahan, Atkinson & Co., Inc. 11 Broadway, New York	C. H. Callahan	H. Mahland	P. Dias	F. W. Chapman	F.	150,000
California-Mexico S. S. Co. Long Beach, Calif.					Gas. Str.	987
Cambridge Gas-Light Co. Cambridge, Mass.	Mgr.: Albert M. Barnes	A. M. Barnes	I. T. Haddock		B.	800
Cape Cod S. S. Co. 148 State St., Boston	Peter H. Crowell	F. T. Peabody		E. Doyle	P.	1,746
*Caribbean S. S. Co., Ltd. 10 Bridge St., New York					F. & P.	
Carioca Co., Inc. New Orleans	B. W. Allen	C. J. Friedrichs	T. J. Collin	Controlled by Allen & Friedrichs Walter Tinn	F.	762
*Carolina Co., The Charleston, S. C.	Mgr.: J. M. Whitt	Chas. Dewey	J. D. Goss		F.	100,000
Carver, Amos D. 39 Water St., New York					S.	2,731
Casper Lumber Co. San Francisco					C.	1,177
Castner, Curran & Bullitt Norfolk, Va.					F.	36,638
Catskill Evening Line Pier 43, N. R., New York	Gen. Mgr.: R. A. Hiscano				River F. P.	
Celilo S. S. Co. Fife Bldg., San Francisco	Chas. R. McCormick	M. R. Richley	W. R. Hewitt		F. & P.	943
Central Vermont Trans. Co. St. Albans, Vt.	E. C. Smith	H. M. Dewart	H. T. Newell	E. J. Guthrie New London, Conn.	F.	5,636
Chamberlin Co., W. R. Balboa Bldg., San Francisco	W. R. Chamberlin	E. A. Chamberlin	T. L. Tomlinson	Capt. J. Bender	F.	2,400
Champlain Trans. Co., The Burlington, Vt.	Gen. Mgr.: D. A. Loomis	J. White Sprong Albany, N. Y.			Lumber F. & P. Lake Champlain F. & P.	2,830 1,169
Chicago & South Haven S. S. Co. Chicago						
Chilberg Line Alaska Bldg., Seattle	J. E. Chilberg	B. J. Fotheringham	J. C. Williams	H. F. Weeder	F.	14,000
Chile S. S. Co., Inc. 120 Broadway, New York	J. K. MacGowan	G. G. Thomas	A. W. Murfield Esplen Sons & McNaught Jno. Connal	E. C. Tuckwell J. K. Hanson	F.	30,000
Chicmela Ship Corp. Room 1603, 17 Battery Pl., N. Y.	Minor C. Keith	R. B. Hubbell			F.	700
Clark, Eleazer W. Portland, Me.					S.	2,755
*Clinchfield Nav. Co., Inc. 24 Broad St., New York	C. M. Barnett	Martin Gately	Capt. E. P. Boyles	Capt. Boyles	F.	40,000
*Clyde S. S. Co. Pier 36, N. R., New York	H. H. Raymond	C. R. Edgecumbe	W. T. Webster	Capt. Wm. Park	F. & P.	54,000
Coast Shipping Co. San Francisco	Joseph A. Oliver	Joseph A. Oliver			F.	1,232

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Coast Transit Co. 17 Battery Pl., New York	James Griffiths	G. A. Rogers	C. C. Lacey	A. Wuthenow	B. F.	1,034
Coastwise S. S. & Barge Co. Burke Bldg., Seattle					F.	14,361
*Coastwise Trans. Co. 44 Whitehall St., New York					F.	77,000
Colonial Navigation Co. Ft. W. Houston St., New York					F. & P.	5,600
Columbia River Packers' Asso'n Astoria, Ore.	L. W. Simmons	R. C. Butler	Joseph Bonner	C. J. Rogers	C.	3,722
*Columbia-Pacific Shipping Co. Portland, Ore.					F.	
*Columbus Shipping Co., Inc. 29 Broadway, New York					Tankers	200,000
*Columbus S. S. Co., Inc. 61 Broadway, New York					F.	108,000
Consolidation Coastwise Co. Boston, Mass.	Wm. E. Brady	Thos. E. Brady	C. Herman Brandes	Thos. E. Brady	F. B. Coal	13,000
Cook, H. W. 437 Chestnut St., Philadelphia					B. F.	4,451
*Cook-Cummer S. S. Co. 437 Chestnut St., Philadelphia					F.	Varies
Coos Bay Lumber Co., Inc. Oakland, Calif.					C.	3,799
*Cosmopolitan Shipping Co. 115 Broadway, New York	A. F. Mack	See Green Star				
*Coyle & Co., W. G. 131 State St., Boston					F.	Varies
*Crowell & Thurlow 131 State St., Boston					F.	80,300
Cuba Distilling Co. 27 William St., New York					C. Tankers	13,531
Cuban Atlantic Transport Corp. 39 Cortlandt St., New York	Edward Peirce	N. G. Merrill	M. A. Coombs	A. L. Kent	S.	1,432
*Cummins & Co., Inc., A. D. Philadelphia					S.	2,252
Cyclades Trans. Co. 20 Pearl St., New York					F.	3,000
Davenport S. S. Co. 112 Market St., San Francisco					F.	8,732
Deering Co., G. G. Bath, Me.	G. E. Rubens	H. G. Deering	O. M. Dunton	R. L. Holden	F. M. Deering	14,541
Denechaud, J. F. New Orleans, La.					F. S.	3,300
Dollar Steamship Line San Francisco, Cal.					F.	7,500
*Dollar Co., Robert San Francisco					F.	5,000
Donald S. S. Co., Inc. 39 Broadway, New York	Geo. E. Earnshaw	Port Steward: H. S. Hagert	W. H. Altmansberger	John M. Flynn	Gas Str.	2,415
*Dougherty Co., P. Baltimore, Md.					F. B.	14,615
*Earn-Line S. S. Co. Bullitt Bldg., Philadelphia					F.	
East Coast-Trans. Corp. 17 Battery Pl., New York					S. F.	4,833
Eastern S. S. Lines, Inc. India Wharf, Boston	Calvin Austin	H. L. Nevins	L. D. Mosely		P. & F.	23,216
Eastern Trans. Co. Wilmington, Del.					B. F.	8,720
*Eastern Trans. Co. Baltimore					F.	
East Jersey R. R. & Term. Co. 11 Broadway, New York					B. F. Petrol.	15,000
Elder Steel S. S. Co., Inc. 50 Broad St., New York	R. D. Benson	E. H. Shelley		C. R. Norman	F. Cold storage	27,903
Elliott, Richard O. Thomaston, Me.					S.	3,906
*Elwell & Co., Jas. W. 17 State St., New York					F. & P.	100,000
*Emery & Co., Inc., J. S. 114 State St., Boston					F.	40,000

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Eschen & Minor Co., Inc. 24 Calif. St., San Francisco					F. S.	1,639
European Pacific Line San Francisco	Gen. Mgr.: J. E. Cushing	W. S. Ward	Capt. Will Curtis	E. Bertrand	F.	140,000
*Evans & Sons, Inc., E. C. 545 Calif St., San Francisco					F.	
*Export S. S. Corp. 67 Exchange Pl., New York	C. C. Torpy	J. H. McGovern	Wm. Clift	Capt. R. E. Judson	F.	62,276
Export Trans. Co. Keyser Bldg., Baltimore					F.	
Farragut S. S. Corp. Cincinnati, O.	Sigmund Freiberg	Blue Star Nav. Co., Philadelphia	Same	Same	F.	12,900
Fife Shipping Co., Inc. 350 Calif St., San Francisco	R. C. Reid				F.	12,000
Florida East Coast Car Ferry St. Augustine, Fla.	W. H. Beardsley 120 Broadway, New York	C. D. Boice 120 Broadway, New York	Operated by P. & O. S. S. Co.		Lumber Car Ferries F. Steamer	7,500 3,014
Foreign & Domestic Trans. Corp. 11 Broadway, New York						
Foreign. Transport & Mercantile Corp. 8 Bridge St., New York	F. B. Lynch	Chas. K. Rose	R. R. Adams	Capt. W. J. Smith	F. Tramps	40,000
*France & Canada S. S. Corp. 120 Broadway, New York	F. R. Mayer	W. E. Scott			F.	90,000
Freeman, S. S. 1 Drumm St., San Francisco					F. S.	
Freeport Sulphur Trans. Co. 61 Broadway, N. Y.	E. P. Swenson				F. C.	13,675
*French-American Line, Inc. 18 Broadway, New York					F.	4,800
Gardiner Mill Co., Inc. 16 Calif St., San Francisco					F. C.	2,772
Garland S. S. Corp. 511 Fifth Ave., New York	S. G. Allen		J. H. MacKenzie	D. O. Campbell	F.	23,000
*Gaston, Williams & Wigmore S. S. Corp. 105 West 40th St., New York	Vice-Pres. & Gen. Mgr.: J. B. Austin, Jr.	J. L. Higbee	Alex Hynd	C. E. McLaren	F. & P.	82,000
*General Navigation Co. 18 Broadway, New York					F.	
General S. S. Corporation 280 Battery St., San Francisco	Charles Belknap	C. C. Houston	D. Dorward, Jr.	Capt. A. T. Hunter	F.	53,768
Georgia Shipbuilding Co. Savannah, Ga.	M. A. O'Byrne				F. S.	3,272
Gillespie, Inc., A. M. Seattle, Wash.	A. M. Gillespie	A. W. Kinney	Jas. Gillespie		F.	100,000
*Gilmartin & Co. 77 Broad St., New York					F. S.	741
*Grace S. S. Co., Inc. 10 Hanover Sq., New York	M. Bouvier	H. B. Noaks	D. Mathieson	E. Bijou	F. & P.	60,000
*Grandfield & Son, W. J. 308 Chestnut St., Philadelphia					F.	
Gray's Harbor Motor Ship Corp. Seattle, Wash.	A. Schubach	A. B. Shay	W. A. Magee	W. A. Magee	F.	7,500
Great N. Western Shipping Corp. 20 Broad St., New York	J. E. Dockendorff	See Black Diamond S. S. Corp.			S. S. New Britain	5,268
*Green Star S. S. Corp. 52 New St., New York	Jos. Mercadante	Geo. F. Fleischer	Chas. Stewart	H. E. Jefferson	F.	171,486
*Gulf & Southern S. S. Co. Ft. Liberty St., Jacksonville, Fla.					F.	4,321
Gulf European S. S. Co. Mobile, Ala.	Jas. L. Coleman	W. H. Hagan	Richard Walsh	L. D. Holt	F.	Varies
*Gulf Export & Trans. Co. Beaumont, Tex.	W. A. Bowie		Claude S. Abrego	Earl Porter	F.	12,300
Gulf Mail S. S. Co. San Francisco					F.	5,564
Gulf Nav. Co. Inc. New Orleans, La.	Gonzalo Abaupza		A. E. Wilson	H. H. Long	F.	6,800
Gulf Refining Co. Marine Dept., Port Arthur, Texas					Tankers C.	71,912

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Hammond Lumber Co. 260 Cal. St., San Francisco	A. B. Hammond	S. L. Rea	H. F. Faull	H. F. Faul	F. C.	3,857
Hanify Co., Inc., J. R. 24 Market St., San Francisco					Steamers	3,381
Harbor Navigation Co. Hoquiam, Wash.	Alex. Pulson	J. C. Shaw	Home office: Tacoma, Wash.	See Frank A. Hill	F.	3 134
*Harriss, Magill & Co. 35 S. William St., New York					F.	
*Hasler Bros. Produce Exchange, New York					F.	
*Hasler & Co., Robert Norfolk, Va.					F.	Varies
Hays, T. A. Mills Bldg., San Francisco					F.	4,324
Hibbard-Swenson Co. Seattle, Wash.	Address Company				F. C.	1,000
Higgins, Chas. H. Berkeley, Cal.					Owner steamer	912
Higgins, J. F. Oakland, Cal.					Owner steamer	872
Hind, Geo. U. 230 Cal. St., San Francisco					S.	2,495
Holbrook Towing Line, Inc. 15 William St., New York	W. S. Holbrook	W. S. Holbrook	Jos. B. Mason	Alfred S. Shuman	F. T.	
Hollywood S. S. Corp. 33 Pine St., New York	O. J. Thomen		A. C. Peslin		F.	1,940
Hudson Navigation Co. Pier 32, N. R., New York	A. H. Hanscom	M. F. Long	J. Allardice	J. Allardice	P. & F. River	19,200
Hudson River Day Line Desbrosses St. Pier, New York	E. E. Olcott	A. Hornor		C. G. Whiton	P. Hudson River	9,500
Hunter, W. N. Mobile, Ala.					S.	1,666
Hughes, Jr., James 29 Broadway, New York					F.	
Hyams Coal Co., Robt. P. New Orleans, La.					S. Coal	1,208
Imperial Shipping Corp. (See Green Star)	(See Green Star)				F.	25,870
Imperial S. S. Corp. (See Green Star)	(See Green Star)				F.	5,972
Inland Water Ways S. S. Corp. Brooklyn Bridge Dock, New York	A. J. McIntosh	C. C. Brown	Fred Gertzen	Fred Gertzen	F.	2,000
*Inter-Coast S. S. Co. 148 State St., Boston	Arthur L. Crowley	Wm. K. Irving	M. L. Emmons		F.	15,000
Inter-Island Steam Nav. Co. Honolulu, H. T.					P. & F.	8,000
International Bureau of Supp. 233 Broadway, New York	(See Baltic S. S. Co.)					
International Coal Trans. Corp. 39 Broadway, New York					F.	10,066
*International Freighting Corp. Lafayette Bldg., Philadelphia					F.	
*International Maritime Corp. 44 Whitehall St., New York	W. H. Morgan	H. M. Anderson	J. O. Sullivan	Capt. B. Fay	F.	25,000
International Mercantile Marine Co. 9 Broadway, New York	P. A. S. Franklin	F. Spencer	Roger Williams		P. & F.	800,000
Iron Steam Boat Co. of N. Y. 17 Battery Pl., New York	Fred A. Bishop	F. W. Luckemeyer	Gen. Supt.: A. J. Wolcott		7 Excursion steamers	
Island Oil Marketing Corp. 62 Cedar St., New York					F.	
Italian Star Line, Inc. 44 Whitehall St., New York	E. P. Yasselli	G. Vallese	N. E. S. Contreras	C. Agro'	F.	7,800
Jerome, James 1 Drumm St., San Francisco					F.	5,141
Job Shipping Corp. 29 Broadway, New York	W. C. Job	R. D. Megee	R. D. Megee		F.	30,000
Jorkee, S. S., Co. Amer. Bldg., Baltimore					F.	
Katia S. S. Corp. 31 Pine St., New York	O. J. Thomen		A. C. Peslin		F.	2,239
*Kerr, S. S., Co., Inc. 44 Beaver St., New York					F.	

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P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
King Trans. Co., J. B. 17 State St., New York	Geo. R. King	Henry Adams	Wm. B. Fancher	Same	F. B.	10,000
Kurz & Co., Inc., Chas. Drexel Bldg., Philadelphia					F.	
Lackawanna S. S. Co. 17 Battery Pl., New York					F.	1,973
*Langben Bros. Galveston, Tex.					F.	
Lehigh & Wilkes-Barre Coal Co. 143 Liberty St., New York					F. B.	11,498
Lehigh Coal & Nav. Co. 143 Liberty St., New York					Coal Same	6,137
Lehigh Valley Trans. Co. Perth Amboy, N. J.					F.	2,064
Libby, McNeill & Libby San Francisco	W. F. Burrows Chicago			O. W. Branch Seattle	F. C.	9,820
*Lind Nav. Corp. 17 Battery Pl., New York					F.	
Linderman, Fred 110 Market St., San Francisco	Fred Linderman		L. C. Bartmess		F.	6,000
*Livermore, Dearborn & Co. 48 Front St., New York	Managers: Shaw- mut S. S. Co.		D. E. Donovan	M. A. Kearney	F. & P.	Varies
Loop Lumber Co. San Francisco	Wm. Chatham	A. F. Buloth	None	None	F. C.	1,444
*Lowrance & Co. 109 State St., Boston					F.	
*Luchenbach S. S. Co., Inc. 44 Whitehall St., New York	Edgar F. Lucken- bach	W. G. Winne, Jr.	J. H. Dialogue	S. S. Sandberg	F.	220,000
*Lykes Bros. Galveston, Tex.					F.	
*McAllister Bros. 21-24 State St., New York	Senior Member: Capt. J. C. Mc- Allister	T. C. Collins	Superintendent Capt. W. G. Mitchell		Brokers Opera- tors Tankers F.	200,000 4,287
McCormick & Co., Chas. R. San Francisco					F.	
*McCormack & McPherson 201 Sansome St., San Francisco					F.	
McDonnell & Truda 5 State St., New York				Capt. Maggi	P. & F.	
McIntyre Lbr. & Export Co. Mobile, Ala.					F. C.	951
McKeague, Chas. C. Atlantic City		Chas. C. Mc- Keague			F.	655
McNear, Inc., Geo. W. San Francisco					F. S.	5,750
McWilliams Bros., Inc. 1 Broadway, New York	Chas. E. McWill- iams			David G. Elezle	F. T. B. L. I. Sound F.	19,725
*Mallory & Co., Inc., C. D. 11 Broadway, New York						
*Mallory S. S. Co. Pier 36, N. R., New York	H. H. Raymond	G. R. Edgecumbe	W. T. Webster	Capt. Wm. Park	P. & F.	55,000
Massey S. S. Co., Inc. 17 Battery Pl., New York	Chester A. Massey	J. W. Guthrie	A. J. Bouchard	J. F. Massey	F.	8,050
*Matson Navigation Co. 120 Market St., San Francisco	E. D. Fenney	H. W. Mears	Alex. Ryan	Capt. F. M. Ed- wards	F. & P.	83,500 49,853
*Megee Co., The Chas. T. Drexel Bldg., Philadelphia	Chas. T. Megee	H. H. Budd	W. J. Bowker	F. S. Carter	F.	Varies
Mengel Box Co., The Louisville, Ky.	C. C. Mengel	Treasurer: V. H. Bryan			F. C.	3,163
Mercantile Trust & Deposit Co. Baltimore					Bay steam- ers	6,381
*Merchants & Miners Trans. Co. Baltimore	A. D. Stebbins	A. Cradock	H. M. Cornwall	Supt. of Agencies: D. R. McNeill	F. & P.	38,255
*Merchants Nav. Corp. 2 Stone St., New York						
*Merritt & Co., Jno. A. Pensacola, Fla.	J. A. Merritt	R. H. Turner	C. T. Feeles	C. W. Oliver	F.	28,000
Merritt & Chapman Derrick & Wrecking Co. 17 Battery Place, New York					W.	794

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STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Metropolitan Coal Co. Boston					Steamer	1,618
Mexican Fruit & S. S. Corp. New Orleans, La.	J. Di Giorgia	P. J. Parachini	R. Herfich	R. Herfich	F. & P.	4,735
Miami S. S. Co. 32 Broadway, New York					Steamer	719
Mildred Motor Ship Corp. 32 Broadway, New York					Gas steamer	829
Minguell Shipping Corp. Pensacola, Fla.					S.	730
Mission Trans. & Ref. Co. Oleum, Calif.					F. C.	2,214
*Mississippi Shipping Co., Inc. New Orleans, La.	T. F. Cunningham	Gen. Mgr.: N. O. Pedrick	W. C. McKenzie	Capt. E. E. B. Drake	F.	60,000
*Mobile Liners, Inc. Mobile, Ala.					F.	
Montauk Steamboat Co., Ltd. Penn. Station, New York					Steamer	641
*Moran Towing & Trans. Co. 17 Battery Pl., New York					T. B. F.	
Monticello S. S. Co., Inc. San Francisco					Steamer	670
*Moore & Co., Inc., J. J. San Francisco					F. S.	707
*Moore & McCormick Co., Inc. 5 Broadway, New York	A. V. Moore	Charles Hodge	Sam Aiken	Marine Supt.: C. W. Krieg	F. & P.	200,000
Morris, R. G. 26 Beaver St., New York					Owner	2,011
*Munson S. S. Line 82 Beaver St., New York	Frank C. Munson	Sinclair Graham	John H. Telford		F. & P.	300,000
Murphy, J. G. Mobile, Ala.	J. G. Murphy	J. G. Murphy			F. S.	2,730
Nafra Co., Inc. 120 Broadway	(See Green Star)				Steamer	5,643
Naknek Packing Co. San Francisco					F. C.	2,995
National Oil Transport Co. Orange, Tex.					Gas Str.	3,379
*National Shipping Corp. 25 Broad St., New York					B.	3,328
Nelson Co., The Charles San Francisco	James Tyson	J. K. Nelson	L. C. Bartmess		F.	20,000
*Neptune Line, Inc. 25 Beaver St., New York					F. B.	33,716
Netherton Shipping Corp. 29 Broadway, New York	Robert Badcock	Ralph D. Megee	Ralph D. Megee		F.	755
N. Bedford, M. Vineyard & Nantucket S. S. Co. New Bedford, Mass.					F. & P.	677
*New Eng. Fuel & Trans. Co. Boston	R. Grant	J. A. Roche	J. Forsyth	W. A. Ramy	F.	39,525
New England S. S. Co., The Pier 14, N. R., New York	E. J. Pearson	N. M. Rice	Vice-Pres.: J. Howard Gardner		B. F.	22,000
*New Orleans & S. Amer. S. S. Co., Inc. New Orleans	A. G. Bates	Gen. Mgr.: A. N. Floyd	Wm. Moffit	Wm. Moffit	F. & P.	63,483
*N. Y. & Argentine S. S. Co. 50 Broadway, New York					F.	
*N. Y. & Cuba Mail S. S. Co. Ft. Wall St., New York	Alfred G. Smith	J. C. Cotter	Supt. Engineer: T. M. Tait	Capt. C. C. Oakes Term. R. J. Griffith	F. & P.	74,405
N. Y. & N. J. Steamboat Co. Pier 32, E. R., New York	Richard Hopkins	J. H. Ward	J. H. Ward		P.	2,100
*N. Y. & Porto Rico S. S. Co., The 11 Broadway, New York	F. D. Mooney	D. A. Whamond	Jas. Forsyth	J. K. Turnbull	F. & P.	36,000
N. Y., Ontario & Western Ry. Produce Exchange, New York	J. B. Kerr	C. A. Draper		B. F. Hanfield	F. B.	4,578
N. Y., Phila. & Norfolk R. R. Co. Cape Charles, Va.					P.	3,491
*North Atlantic & Western S. S. Co. 53 South St., Boston	Chas. E. Ware, Jr.	M. T. MacDon- ald	P. F. Shaw	Capt. E. D. Sproule	Ferry	40,000
North Pacific Sea Products Co. Seattle, Wash.					C.	2,140

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STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Northern Fisheries, Inc. Anacortes, Wash.					C.	570
*Northern S. S. Co., Inc. 17 Battery Pl., New York	Geo. H. White	H. Groom		Capt. F. W. Irvine	F.	25,000
*Northern Trans. Co. Wilmington, Del.					Steamer F. B.	2,005 19,748
Northwestern Shipping Co. Seattle, Wash.	Chas. E. Peabody	C. H. J. Stoltenberg	Mgr.: F. E. Burns		F.	1,067
*Norton, Lilly & Co. 26 Beaver St., New York					F.	
*Ocean S. S. Co. of Savannah Savannah, Ga.					F. & P.	36,567
Oceanic S. S. Co. San Francisco	John D. Spreckels			W. J. Owens	F. & P.	Varies
Olympia Shipping Corp. 76 Broad St., New York					Steamer Schoon.	5,004 F. C.
Ore S. S. Corp. 111 Broadway, New York	J. H. Cross	W. E. Tobias	Gen. Mgr.: H. W. Warley		F. C.	32,288
*Oriental Navigation Co. 39 Broadway, New York	Philip De Ronde	D. A. Neumann	R. T. Merrill	Harry A. Hogg	F.	300,000
Pacific American Fisheries Bellingham, Wash.					C.	15,567
Pacific Freighters Co., Inc. San Francisco					F. S.	9,210
Pacific Mail S. S. Co. 120 Broadway, New York	Geo. J. Baldwin				P. & F.	
*Pacific Mail S. S. Co. 508 Calif St., San Francisco	Geo. J. Baldwin	R. C. Thompson		A. E. Moncaster	P. & F.	51,923
Pacific Mercantile Marine Co. San Francisco					Steamers Gas	1,522 6,208
Pacific Motor Ship Co. San Francisco					P. & F.	"Admiral" Steamers
*Pacific S. S. Co. Seattle	H. F. Alexander Tacoma	A. R. Gardner	J. O. Gilman J. F. Clements, San Francisco J. E. Kane Portland H. F. Gelhaus	Capt. A. J. Storrs		
Pacific Transport Co. 430 Sansome St., San Francisco	R. H. Swayne			Capt. J. S. Gade	F.	2,053
Padgett & Co., Robt. L. Mobile, Ala.	R. L. Padgett	H. C. Turner			F. S.	3,788
*Page & Jones (see p. —) Mobile, Ala.	J. H. Jones		Lee E. Gager	J. F. Beauchamp	F.	42,000
Pan-American Line 220 Front St., San Francisco	Mgr.: John C. Settle	A. G. Laurent	Philip Sheridan	W. B. Martin	F.	5,000
Pan American Petroleum & Trans. Co. Los Angeles					Oil C.	110,000
Panama R. R. S. S. Line 24 State St., New York					P. & F.	52,394
*Paragon Shipping Corp. 77 Cortlandt St., New York	Albert Smith	E. J. Sharples	J. F. Wright		F. Bulk	28,000 Steamers
Parr-McCormick S. S. Co. San Francisco						1,255
*Patterson, Graham & Co., Inc. Pier 7, N. R., New York	H. R. Patterson	N. R. Van Duyne	E. D. Willard	H. R. Patterson	F.	
Pedersen, L. A. San Francisco					F. S.	8,852
*Pendleton Bros., Inc. 130 Pearl St., New York					F. S.	2,091
Pendleton, F. S. 130 Pearl St., New York					F. S.	6,916
Peninsular & Occidental Trans. Co. New Haven, Conn.					F. P.	4,144
Pennsylvania Coal Co. 165 Broadway, New York					F. B.	1,716
*Penn R. R. Co. Penn. Station					F. C.	2,264
*Pensacola Shipping Co., Inc. Pensacola, Fla.	Geo. W. Howe	H. I. Seabury	B. W. Lee	F. D. Tracy	F.	S. Board ships
*Phelps Bros. & Co., S. S. Agents 17 Battery Pl., New York	Sen. Member: Howard Phelps	C. B. Smith	J. S. Arkebauer	Capt. H. G. Gregg	P. & F.	S. Board ships
Phillips Nav. Corporation 149 Broadway, New York					F. S.	671

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Pierce Navigation Co. 25 Broad St., New York	Eben Richards	S. L. Kamps		W. P. Tarpey	Tankers Oil	5,773
Pittsburgh Coal Co. 8 Market St., Pittsburgh	W. K. Field	F. E. Now	Asst. to Pres.: S. C. Gailey	G. Mgr. Trans.: C. C. Bunton	T. B.	
*Pioneer S. S. Corp. 67 Exchange Place, New York	F. C. Scofield	R. B. Bain	Geo. B. Dahl	Capt. F. C. W. Smith	F.	40,000
Pocahontas Fuel Co., Inc. 1 Broadway, New York	Isaac T. Mann		Capt. C. O. Olsen		F.	9,980
Polish American Nav. Corp. 206 Broadway, New York	T. Niklewicz			Capt. Ulmer	F.	8,000
*Port Arthur, Tex., Trans-Atlantic Line Port Arthur, Tex.					F.	
*Potter Trans. Co., Inc. 11 Broadway, New York					F.	
Puget Sound Nav. Co. Seattle, Wash.	Joshua Green	C. H. J. Stoltenberg	C. F. Bishop	W. P. Thornton	F. & P. Puget Sound	11,500
Puget Sound Tugboat Co. Seattle, Wash.					F. B.	1,420
Furdy, B. G. 28 T. Wharf, Boston	Arthur Crowley	B. G. Purdy			P.	1,018
*Raparel S. S. Line, Inc. Pier 44, N. River, New York					F.	
Reading Co. Reading Terms, Philadelphia					T. Coal to N. E.	Tugs 71 barges
Red "D" Line of S. S. 82 Wall St., New York	F. A. Dallett	Frank Combs	H. Stout	Capt. T. Furst	P. & F.	10,000
Red Salmon Canning Co. San Francisco					C.	2,730
*Red Star Line 9 Broadway, New York					P. & F.	
Redwood S. S. Co. San Francisco	H. D. Morteson	Holmes Eureka Lumber Co.		Holmes Eureka Lumber Co.	F.	500
Reichert Towing Line Brooklyn, N. Y.					F.	
*Richmond-New York S. S. Co. Richmond, Va.	J. Scott Parrish	Harriss, Magill & Co., 35 S. Wil- liam, New York		W. O. Topham	F.	3,964
*Ripley & Co., Daniel Galveston, Tex.					F.	
Rotin Line S. S. Co. Seattle, Wash.	D. E. Skinner		Asst. Gen. Mgr.: M. H. Kiel		F.	27,238
Rockland & Rockport Lime Co. Rockland, Me.					F. B. C.	
*Rogers & Webb 110 State St., Boston					F. S.	
Rolph Trans. & Coal Co. 230 Calif St., San Francisco					F. S.	27,439
San Francisco & Portland S. S. Co.	Carl P. Gray, Omaha, Neb.	Gen. Mgr.: F. Schafer			F. & P.	3,438
Saugerties & N. Y. Steamboat Co. Saugerties, N. Y.	J. A. Snyder	D. N. Finger			F. & P.	1,173
Savannah-N. Y. Trans. Co.	Mgr.: S. K. Sulli- van, 29 Broad- way, New York				T. F. B.	7,552
Scott, L. A. Mobile, Ala.	L. A. Scott	Same	Same	Same	F. S.	3,700
Scott, J. M. 29 Broadway, New York					F. S.	6,516
*Seaboard & Gulf S. S. Co. Pier 32, E. River, New York					F.	2,183
Seaborn, H. G. Seattle, Wash.					F. S.	1,196
*Seager S. S. Co., Inc. 25 Beaver St., New York	John C. Seager	Frank Singer	David W. Cox	John Backe	F.	Varies
Seas Shipping Corp. 39 Cortlandt St., New York	A. R. Lewis	F. W. Osborn	F. W. Osborn		F.	14,000
*Sitcovich Trans. Co., Inc., S. Calveston, Tex.	F. A. Lallier	P. E. McKenna	J. F. Fisher	H. C. Alden	F.	75,000
Shawmut S. S. Co. Boston, Mass.	Mgrs.: Livermore, Dearborn & Co. New York				F.	17,333

*Companies operate Shipping Board ships also.

P.—Passenger, F.—Freight, T.—Touring, B.—Barge, S.—Sail, C.—Company Business, W.—Wrecking.

STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
Sherman S. S. Co. 120 Broadway, New York	(See Chile S. S. Co.)				F.	25,000
*Sigsbee, Humphrey & Co. 23 S. William St., New York	R. R. Sigsbee	L. M. Ingres	J. G. Gillespie	D. A. O'Brien	F.	42,000
Silver Shell S. S. Co. San Francisco (Gold Shell and Pearl Shell, same)	J. C. Van Eck	G. C. Noble			Tankers	16,833
Sinclair Nav. Co., Inc. 120 Broadway, New York					C.	17,250
*Smith & Terry, Inc. 11 Broadway, New York	Edwin Terry				T. & F.	20,000
*South Atlantic Maritime Corp. Savannah, Ga.	Matthew Hale	F. J. Howden	R. J. Cohen	W. H. Riehl	F.	75,000
Southern Pacific Co. Pier 49, N. R., New York					F. & P.	119,170
*Southern S. S. Co. Philadelphia	H. C. Miller				F.	7,111
*Southern Trans. Co. Philadelphia					F. B. S.	21,641
*Spice, Wilbur F. Baltimore					F.	
*Sprague & Son, C. H. Boston					F.	
*Sprunt & Son, Alex. Wilmington, N. C.					F.	
*Standard Fuel Supply Co. Savannah, Ga.					F.	
*Standard Oil Co. (Calif.) San Francisco	K. R. Kingsbury	A. B. Brooks	J. A. Cronin		C.	51,474
Standard Oil Co. (N. J. & N. Y.) 26 Broadway, New York					C.	450,000
Standard S. S. Co. 2 Stone St., New York, and Baltimore	G. G. Jackson	J. F. Heffernan	J. W. Anderson	J. G. Cartwright	F.	50,000
Standard S. S. Corporation 51 Chambers St., New York					F.	
*Staples Transportation Co. Fall River, Mass.	C. G. Hannah 1 Broadway, New York	E. N. Hammond	W. S. Rea	E. N. Hammond	F.	22,848
*States Marine Co. of Baltimore Baltimore	James Donald New York	Mgr. (Baltimore): G. E. Hofstetter			F.	
*States Marine & Commer. Co. 17 Battery Pl., New York	James Donald	W. J. Bowles	J. C. Collingwood	Alfred Cozens	F.	65,718
*States S. S. Corp., The 132 Pearl St., New York					F.	
*Steele Co., Inc., The J. H. W. Galveston, Tex.	J. W. H. Steele	S. L. Anderson	A. C. Wilson	P. C. Grening	F.	350,000
Sterling Ship Co. Seattle, Wash.	E. R. Sterling	E. R. Sterling			F.	5,000
*Strachan Shipping Co. Savannah, Ga.	Capt. Geo. Walker	H. G. Strachan			F.	Varies
*Struthers & Dixon Line San Francisco	Western Rep. of Green Star Line			Capt. A. W. McKay	F.	Varies
Struven & Co., Chas. M. Baltimore	C. M. Struven				F. S.	
*Sudden & Christenson San Francisco					F.	5,016
Sugar Products Co. 16 Exchange Pl., New York					C.	1,771
Sun Co., Inc. Philadelphia	J. Howard Pew				C.	48,011
Sunset Fuel Oil Co. San Antonio, Tex.	C. H. Kearny	C. H. Kearny	C. H. Kearny	D. R. Locher, Corpus Christi, Tex.	F. C.	
*Sullivan Lighterage Co. 25 Broadway, New York					F. T. B.	
*Susquehanna S. S. Co.	F. Auditore	E. H. Arne	F. L. Worke		F.	
*Swayne & Hoyt San Francisco					F.	
Syndicate Managers Munsey Bldg., Baltimore					F. B.	16,549
Taggart Coal Co., Inc.	G. I. Taggart	T. Taggart			F. B.	827

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STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
*Tampa Inter Ocean S. S. Co. Tampa, Fla.	Philip Shore	L. F. Pallardy	Geo. M. Crocker	Capt. R. W. Stanton	F.	50,115
Tarver Shipbuilding Corp. Dallas, Tex.	A. H. Tarver	A. H. Tarver			F. S.	583
Tempate Ship Corp. 17 Battery Pl., New York	M. C. Keith	R. B. Hubbell	Jno. Connal		F.	700
*Terminal Shipping Co. Baltimore	E. A. Black	G. L. Chafferton	W. M. Stein	Wm. A. Reed	F.	40,000
*Texas Co. (Marine Dept.) 17 Battery Pl., New York	Mgr. Mar. Dept.: W. A. Thompson, Jr., V.-P.		J. P. Roney	Chas. Jackson	C.	100,000
Texas-European Line Galveston, Tex.	J. H. Langben	P. O. Weber	W. P. Cunningham		F.	30,000
*Texas Transport & Term. Co. 11 Broadway, New York	L. H. Spence		F. D. Burns	F. D. Burns	F.	
Thames River Line, Inc. Pier 55, E. River, New York	F. E. Hadley	E. E. Fuchs	Same	Same	F. & P. L. I. Sound F. Coal T. F.	557
Thames Tow Boat Co. New London, Conn.	L. A. Chappell	F. H. Chappell, Jr.	Harry Chadwick			13,000
*Thorndyke & Trenholm, Inc. Seattle, Wash.					F. S.	14,981
Thurlow, Lewis K. 131 State St., Boston						
*Tracy S. S. Co., Inc. 17 State St., New York	M. H. Tracy	W. E. Marsh	J. W. McAuslin	L. M. Jensen	F.	60,000
Trans-Oceanic Shipping Co. 44 Whitehall St., New York					F.	3,357
Tropical Fruit Co. 61 Broadway, New York					F.	1,766
*Tropical S. S. Co. 32 Broadway, New York	W. E. Mullins		H. E. Harrison	Capt. Svane	F.	
*Trosdale, Plant & LaFonta New Orleans	E. S. Trosdale 50 Broad St., New York				F.	
Truxillo S. S. Corp. 17 Battery Pl., New York	A. W. Preston	H. R. Jenney	John Hudson Pier 9, N. R.	Capt. A. F. Davis 131 State St., Boston	F.	2,265
Turner, Richard H. Pensacola	R. H. Turner				F. S.	790
Union Oil Co. of Calif. Los Angeles, Cal.	W. L. Stewart	F. M. Berry	A. O. Pegg	Capt. Edw. Bugge	C.	76,000
Union Petroleum S. S. Co. 26 Broadway, New York	C. A. Eames				C.	14,000
Union S. S. Co. San Francisco					F.	17,727
Union Sulphur Co. 17 Battery Pl., New York	H. D. Whiton	A. McIntock	H. F. Smith	H. F. Smith	C.	32,000
*United Fruit Co. 17 Battery Pl., New York					F. & P.	95,393
*United S. S. Co. Galveston, Tex.	H. Mosle	Chas. Westerfeld	W. Crossmore	Capt. Luth	F.	55,000
United Transportation Co. 17 Battery Pl., New York	H. W. Brown	Alexander Gow		Alexander Gow	F.	98,218
U. S. Mex. Oil Corp. 26 Beaver St., New York Savannah, Ga.					C.	10,375
*U. S. Mail S. S. Co. 120 Broadway, New York	Francis R. Mayer V.P.: Capt. O. W. Koester E. R. Thomas	W. E. Scott	T. S. Howes	H. Moeller	P. & F.	235,000
U. S. Steel Products Co. 30 Church St., New York			Alfred Dunn	P. F. Donnelly	F.	106,321
*U. S. Transport Co. 50 Broad St., New York	H. F. Morse	P. F. Tubbs	D. M. Fairely	W. H. Daley	F.	131,400
*U. S. & Australasia S. S. Co. 8 Bridge St., New York					F.	
*U. S. & Brazil S. S. Line 39 Cortlandt St., New York	A. R. Lewis	F. W. Osborne			F.	
Universal Shipping & Trading Co. Seattle, Wash.	H. H. Hammer		M. McGinnitie	Capt. C. T. Larsen	F.	16,796
Universal S. S. Co. Savannah, Ga.					F.	
Vacuum Oil Co. 61 Broadway, New York					C.	30,923

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STEAMSHIP COMPANIES OF THE UNITED STATES

Names and Addresses	President	Purchasing Agent	Repairs or Port Engineer	Port Superintendent or Captain	Service	Tonnage
*Van Heynigen Brokerage Co. Mobile, Ala.	T. C. Thompson				F.	20,000
Veritas Shipping Corp. 90 West St., New York					F. S.	1,785
*Walker & Daly 10 Hanover Sq., New York					F.	
*Warren Transportation Co. 35 Congress St., Boston	Geo. E. Warren		W. M. Syme	Capt. A. S. Wilson	F.	4,000
*Waterhouse & Co., Frank Seattle, Wash.	Frank Waterhouse	W. B. Gilham	Wm. Peel	Capt. J. Jordison	F.	81,000
*Waterman S. S. Co. Mobile, Ala.					F.	
Waukau Transit Co. 6 N. Mich. Ave., Chicago	E. P. Farley		Chas. Elliott		F.	2,000
Webb, Chas. F. Boston, Mass.					F. S.	3,156
*Wells S. S. Corp., Geo. H. 82 Beaver St., New York					F.	
*Wessel, Duval & Co., 25 Broad St., New York			James Walton		F.	
West Coast Line 25 Broad St., New York	Mgr.: Thos. H. Baker	Asst. Mgr.: J. W. Ahearn	James Walton	Capt. Blackadder	F.	
*West India S. S. Co. 26 Beaver St., New York	B. R. Stoddard	H. W. Holmes	F. Littlefield	Capt. Colson	F.	
Western Mercantile Marine Corp. San Francisco	E. A. Christenson	F. C. Lawler	J. W. Pendergast		F.	839
Western Transport Co. San Francisco	R. H. Swayne		H. F. Gelhaus	Capt. J. S. Gade	F.	2,310
Westmorland Coal Co. Philadelphia					F. B.	12,960
*Whitney & Co., J. F. 8 Bridge St., New York					F.	
Whitney & Bodden Shipping Co. Mobile, Ala.	E. L. Whitney	E. L. Whitney		C. S. Bodden	F.	5,800
*Wiest & Co., W. R. Baltimore, Md.					F.	
*Wilkins & Biehl Galveston, Tex.					F.	
*Williams S. S. Co. 44 Whitehall St., New York	G. T. Williams				F.	10,442
*Williams, Dimond & Co. San Francisco			R. H. Bagott		F.	
*Williamson & Rauers Co. Savannah, Ga.	W. W. Williamson	F. J. Howden	J. R. Cohen		F.	75,000
Wilmington Trans. Co. Wilmington, Cal.					P.	2,596
Wilson, Henry 112 Market St., San Francisco					F. P.	2,644
Wilson Line Wilmington, Del.	Horace Wilson	J. W. Martenis	P. F. Hambach		F. & P.	4,069
Wilson Fisheries Co. Seattle, Wash.					C.	785
*Winchester & Co., J. H. Produce Exchange, New York					F.	
*Windward Islands Line Mobile, Ala.	Gen. Mgr.: V. S. Hurlbert				F.	35,000
Wood, W. H. San Francisco					F.	5,485
Wood Lumber Co., E. K. San Francisco					C.	10,180
*Wyman S. S. Corp. 50 Broadway, New York					F.	

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